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Acronyms

ACSW	Advanced Crew Served Weapon
BCT	Brigade Combat Team
FCS	Future Combat Systems
IG	Inspector General
OCSW	Objective Crew Served Weapon
OICW	Objective Individual Combat Weapon
PEO	Program Executive Officer



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-4704

June 5, 2007

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Report on Airbursting Fuze Technology Used for the Objective Individual Combat Weapon and the Advanced Crew Served Weapon (Report No. D-2007-104) (U)

(U) We are providing this report for review and comment. This report is the fourth in a series of reports on the overall management of the Objective Individual Combat Weapon (OICW). This report addresses the fuze technologies associated with the OICW Increments II and III (XM25 and XM29) and the Advanced Crew Served Weapon (XM307 and XM307G) Programs. This report also addresses the program requirements process and designation of the milestone decision authority for the XM307 and XM307G Programs. We considered management comments on a draft of this report when preparing the final report.

(U) DoD Directive 7650.3 requires that all recommendations be resolved promptly. As a result of management comments, we revised Recommendation B.1. and added Recommendations B.2. and C.2. to clarify our intention. Therefore, we request that the Assistant Secretary of the Army (Financial Management and Comptroller) provide comments on Recommendations B.2. and C.2., and that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) provide additional comments on Recommendations B.1. and C.1.b. by July 5, 2007.

(U) If possible, please send management comments in electronic format (Adobe Acrobat file only) to AudACM@dodig.mil. Copies of the management comments must contain the actual signature of the authorizing official. We cannot accept the / Signed / symbol in place of the actual signature. If you arrange to send classified comments electronically, they must be sent over the SECRET Internet Protocol Router Network (SIPRNET).

(U) We appreciate the courtesies extended to the staff. Questions should be directed to Mr. John E. Meling at (703) 604-9091 (DSN 664-9091) or Mr. Jack D. Snider at (703) 604-9087 (DSN 664-9087). See Appendix G for the report distribution. The team members are listed inside the back cover.

By direction of the Deputy Inspector General for Auditing:

Richard B. Jolliffe
Assistant Inspector General
Acquisition and Contract Management

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Department of Defense Office of Inspector General

Report No. D-2007-104

(Project No. D2006-D000AE-0154.001)

June 5, 2007

Airbursting Fuze Technology Used for the Objective Individual Combat Weapon and the Advanced Crew Served Weapon (U)

Executive Summary

(U) Why You Should Read This Report. This report discusses internal control issues associated with the implementation of a common fuze technology for use on 25-millimeter, high-explosive, airbursting ammunition and with program entry into the system development and demonstration phase of the acquisition process.

(U) Background. The Objective Individual Combat Weapon (OICW or XM29 [Increment III]) is a dual-engagement weapon: its primary subsystem fires a 25-millimeter, airbursting ammunition (XM25 [Increment II]), and its secondary subsystem fires the standard 5.56-millimeter ammunition (Increment I). The Advanced Crew Served Weapon, which later became the XM307 and XM307G Programs, is to provide accurate, long-range firepower, including airbursting ammunitions, in a lightweight system package. The XM307 and XM307G weapons are the next generation of mounted and dismounted machine guns, respectively.

(U) This is the fourth in a series of reports on the overall management of the OICW Program. This report addresses a common fuze technology for the high-explosive, airbursting shells used in the XM25/XM29 and XM307 weapons. This report also addresses entry of the XM307 and XM307G Programs into the system development and demonstration phase of the acquisition process.

(U) Results. The XM25/XM29 and XM307/XM307G Programs had fundamental internal control weaknesses in several areas. Specifically, the then-Program Executive Officer Soldier did not require the development and implementation of a common fuze technology for the high-explosive, airbursting shells to be used in the XM25/XM29 and the XM307 weapons. In addition, the XM307 and XM307G Programs, without proper authorization, entered the system development and demonstration phase of the acquisition process. The following three findings discuss those internal control issues.

- The OICW and XM307 Program Offices did not have a common fuze technology for setting, measuring range, and arming the high-explosive, airbursting shells used in the XM25/XM29 and the XM307 Programs. As a result, the Army will not have an opportunity to achieve a potential ammunition cost avoidance of about \$107.5 million. The Program Executive Officer Soldier needs to require program managers for the OICW and XM307 Programs to conduct a study to determine whether a common fuze technology is still viable for those programs (finding A).
- The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process before the Joint Requirements Oversight Council approved the warfighter requirements for the XM307. As a result, the Future Combat Systems (FCS) and the XM307 Program Offices prematurely spent about \$98.1 million in research, development, test, and

evaluation funds on developing the XM307 Program. In this regard, the FCS Program Manager planned to spend an additional \$93.3 million in those funds for the program without assurance that the XM307 will satisfy warfighter requirements. Before the completion of the audit, the Army initiated plans to withdraw \$80.1 million of the \$93.3 million from the program and to use the remaining \$13.2 million to close out the contract. The Assistant Secretary of the Army (Acquisition, Logistics, and Technology) and the Assistant Secretary of the Army (Financial Management and Comptroller) should not allow the XM307 Program Office to commit or obligate any further resources on this program until it has a stand-alone requirement approved by the Joint Requirements Oversight Council. In addition, future resources should not be committed until the program has a program review and the milestone decision authority signs an acquisition decision memorandum that approves it for entry into the system development and demonstration phase of the acquisition process (finding B).

- The then- Program Executive Officer Soldier prematurely, and without authorization, approved the XM307G Program for entry into the system development and demonstration phase of the acquisition process. As a result, the XM307G Program Manager began the process for developing the program before having an approved requirements document and full funding for the program. Because the XM307G Program was not funded, the XM307G Program Office contends that it has not yet expended funds developing the program. However, as of May 2007, the XM307 Program Office has spent about \$400,000 in FY 2007 research, development, test, and evaluation congressional plus-up funds on the dismounted version of the XM307 (XM307G). In response to the draft report, the Program Executive Officer Soldier rescinded the acquisition decision memorandum that allowed the XM307G Program to enter the system development and demonstration phase. Further, the Office of the Assistant Secretary of the Army (Financial Management and Comptroller) withdrew \$2.697 million in FY 2007 research, development, test, and evaluation congressional plus-up funds and plans to withdraw an additional \$18,000 in remaining congressional plus-up funds. The Assistant Secretaries of the Army (Acquisition, Logistics, and Technology) and (Financial Management and Comptroller) should not fund any additional work on the XM307G Program until the program has an approved requirements document and an acquisition decision memorandum approved by a properly designated milestone decision authority (finding C).

(U) The Army internal controls for the XM25/XM29 and XM307/XM307G Programs need to be strengthened. We identified material internal control weaknesses concerning the nondevelopment and implementation of a common fuze technology for the high-explosive, airbursting shells to be used in the XM25/XM29 and XM307 weapons and the entry of the XM307 and XM307G Programs into the system development and demonstration phase of the acquisition process.

(U) Management Comments and Audit Response. We received comments from the Deputy for Acquisition and Systems Management, responding for the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) and the Program Executive Officer Soldier; and from the Deputy Program Manager, Operations, Future Combat Systems (Brigade Combat Team [BCT]), and the Project Manager Soldier Weapons.

(U) The Deputy for Acquisition and Systems Management neither concurred nor nonconcurred with the recommendation to require program managers for the OICW and XM307 Programs to conduct a study to determine whether a common fuze technology was still viable for those programs. However, his comments and those by the Project

Manager Soldier Weapons met the intent of the recommendation. The Deputy for Acquisition and Systems Management also neither concurred nor nonconcurred with the recommendation to not allow the XM307 Program Office to commit or obligate any further resources on the XM307 until the program has a stand-alone requirement approved by the Joint Requirements Oversight Council, a program review, and the milestone decision authority signs an acquisition decision memorandum that approves it for entry into the system development and demonstration phase of the acquisition process. The Deputy for Acquisition and Systems Management concurred with the recommendation to rescind the acquisition decision memorandum that allowed the XM307G Program to enter the system development and demonstration phase. He nonconcurred with the recommendation to not allow development, including future contracts or modifications, and research, development, test, and evaluation funding of the XM307G Program, until the XM307G Program has a requirements document approved by the Joint Requirement Oversight Council, full funding, and an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). The Deputy Program Manager, Operations, Future Combat Systems (BCT) and the Project Manager Soldier Weapons commented on the development of the XM307 and XM307G Programs, as applicable. The Project Manager Soldier Weapons also commented on the viability of a common, high-explosive, airbursting fuze technology. (See the Finding section of the report for a discussion of the management comments and the Management Comments section of the report for the complete text of the comments.)

(U) In response to the comments by the Deputy for Acquisition and Systems Management; the Deputy Program Manager, Operations, Future Combat Systems (BCT); and the Project Manager Soldier Weapons concerning the XM307 and to obtain intended corrective action, we revised the recommendation to require that the XM307 have a stand-alone requirements document that the Joint Requirements Oversight Council has approved instead of recommending that the XM307 have a stand-alone requirements document or that the FCS operational requirements document be updated to contain sufficient detail to address XM307 capabilities. We also added a recommendation that the Assistant Secretary of the Army (Financial Management and Comptroller) not fund any additional work on the XM307 until the program has a stand-alone requirements document approved by the Joint Requirements Oversight Council, a milestone decision review, and an acquisition decision memorandum that approves the XM307 Program for entry into the system development and demonstration phase of the acquisition process. In addition, in response to the comments by the Deputy for Acquisition and Systems Management concerning the XM307G and to obtain intended corrective action, we added a recommendation that the Assistant Secretary of the Army (Financial Management and Comptroller) not fund any additional work on the XM307G until the program has a requirements document approved by the Joint Requirement Oversight Council, and an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). Therefore, we request that the Assistant Secretary of the Army (Financial Management and Comptroller) respond to the new recommendation concerning the funding of the XM307 and XM307G Programs. We also request that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) review his office's position on the further development of the XM307 and XM307G Programs and that he provide additional comments on those recommendations. The Assistant Secretaries should provide comments on this report by July 5, 2007.

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Background

(U) This is the fourth in a series of reports on the overall management of the Objective Individual Combat Weapon (OICW) Program. This report addresses the fuze technologies associated with the OICW Increments II and III Program and the Advanced Crew Served Weapon (ACSW), which later became the XM307 and XM307G Programs. This report also addresses the program requirements process for the XM307 and XM307G Programs and entry of those programs into the system development and demonstration phase of the acquisition process. Appendix B is a glossary of technical terms used in this report.

(U) OICW Program Management. The OICW is a dual-engagement weapon: its primary subsystem fires a 25-millimeter, airbursting ammunition, and its secondary subsystem fires the standard 5.56-millimeter ammunition. In January 2003, the Program Executive Officer Soldier (PEO Soldier) briefed the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) on an evolutionary acquisition approach for incrementally developing the OICW subsystems by maturing two separate-but-parallel capabilities: the kinetic energy system (XM8 [Increment I]) and the stand-alone, high-explosive, airbursting system (XM25 [Increment II]). After the systems were developed, they would be combined to form the originally conceived OICW (XM29 [Increment III]). The following figures show the XM25 and XM29 weapons.



Source: Modern Firearms and Ammunition
<http://world.guns.ru/grenade/g113-e.htm>



Source: Military Photos.Net
<http://media.militaryphotos.net/photos/album112/ade>

**(U) OICW Increment II
(XM25 Weapon System)**

**(U) OICW Increment III
(XM29 Weapon System)**

(U) ACSW Program Management. In 2003, the ACSW, which later became the XM307 and XM307G, completed an advanced technology demonstration, using three prototype 25-millimeter systems.

(U) XM307 Program Management. In December 2003, the XM307 Program entered the system development and demonstration phase of the acquisition process. The XM307 machine gun combines the lethality of a

precision, 25-millimeter, airbursting ammunition; a 25-millimeter armor-piercing ammunition; and a nonconventional, lightweight design. The Army plans to use the XM307 on selected Future Combat Systems (FCS) vehicles. The figure below shows the XM307 weapon mounted on an FCS Manned Ground Vehicle.



(U) XM307 Weapon Mounted on a Future Combat Systems Manned Ground Vehicle

Source: Future Combat Systems Program Office

(U) XM307G Program Management. The XM307G is the same as an XM307 weapon; however, it can be vehicle-mounted or tripod-mounted for ground applications. On June 24, 2005, the then-PEO Soldier approved entry of the XM307G into the system development and demonstration phase of the acquisition process.



Source: Defense Update - International Online Defense Magazine
<http://www.defense-update.com/products/x/xm307.htm>

(U) XM307G Weapon

(U) Program Executive Office Soldier. The Program Executive Office Soldier oversees the development of the OICW, XM307, and XM307G Programs. The Program Executive Office Soldier's mission is to design, develop, procure, field, and sustain virtually everything the soldier wears or carries. Reporting to the PEO Soldier is the Project Manager Soldier Weapons who supports the soldiers through the development, procurement, and production of weapon systems,

ammunition, and associated target-acquisition and fire-control systems. Reporting to the Project Manager Soldier Weapons is the Product Manager Individual Weapons (OICW Program Manager) who maintains and improves existing individual weapons, such as rifles, carbines, pistols, and grenade launchers for the Army and other Military Departments. Also reporting to Project Manager Soldier Weapons is the Product Manager Crew Served Weapons (XM307 and XM307G Program Manager) who maintains light to heavy machine guns, grenade launchers, and research and development of small arms ammunition.

(U) Overall Audit Project. This audit report is the fourth in a series of reports on the overall management of the OICW Program. The first report, DoD Inspector General (IG) Report No. D-2006-004, “Acquisition of the Objective Individual Combat Weapon,” October 7, 2005, addressed internal control weaknesses associated with the program documentation, acquisition category classification, and approval of the OICW Increment I capability development document before entry into the system development and demonstration phase of the acquisition process. The second report, DoD IG Report No. D-2006-087, “Acquisition of the Objective Individual Combat Weapon Increments II and III,” May 15, 2006, addressed the Army’s completion of the requirements process for OICW Increments II and III. The third report, DoD IG Report No. D-2006-123, “Program Management of the Objective Individual Combat Weapon Increment I,” September 29, 2006, addressed requirements and systems engineering processes, contracting and funding procedures, and milestone decision authority for OICW Increment I.

Objective (U)

(U) This audit is a continuation of work on our review of the program management of the OICW Program. The objective of this audit was to determine the viability of a common fuze technology for the high-explosive, airbursting shells used in the XM25 and XM29 (OICW Increments II and III) and the XM307 weapons. We also determined whether management was effectively implementing the program requirements process for the XM307 and XM307G Programs and whether those programs properly entered the system development and demonstration phase of the acquisition process. See Appendix A for a discussion of the scope and methodology and prior coverage related to the audit objectives.

Review of Internal Controls (U)

(U) OICW and XM307 Internal Control Weakness. We identified material weaknesses in the application of internal controls associated with OICW Increments II and III (XM25 and XM29) and the XM307 and XM307G Programs, as defined by DoD Instruction 5010.40, “Managers’ Internal Control (MIC) Program Procedures,” January 4, 2006. Although the internal controls outlined in the DoD 5000 series of guidance and Army Regulation 70-1, “Army Acquisition Policy,” December 31, 2003, were adequate for controlling the four Army acquisition programs, Army acquisition officials did not adequately follow those internal controls. Specifically, the then-PEO Soldier did not require the

development and implementation of a common fuze technology for the high-explosive, airbursting shells used in the XM25/XM29 and the XM307 weapons. In addition, the XM307 and XM307G Programs, without proper authorization, entered the system development and demonstration phase of the acquisition process. Implementing the recommendations in findings A, B, and C will improve those internal control weaknesses and could result in a potential ammunition cost avoidance of about \$107.5 million. A copy of this report will be provided to the senior official responsible for internal controls in the Office of the Assistant Secretary of the Army (Financial Management and Comptroller).

(U) OICW Prior Coverage Internal Control Weaknesses. DoD IG Report Nos. D-2006-004, No. D-2006-087, and D-2006-123 also addressed internal control weaknesses associated with following the DoD 5000 series of guidance and Army Regulation 70-1 on the OICW Program. The first report addressed an internal control weakness associated with preparing and approving OICW Increment I for entry into the system development and demonstration phase of the acquisition process. The second report addressed an internal control weakness associated with the Army's completion of the requirements process for OICW Increments II and III. The third report addressed an internal control weakness associated with awarding contracts for the XM8, which later became Increment I of the OICW Program, before having an approved warfighter requirement, and with not obtaining appropriate milestone decision approval before initiating the acquisition.

A. Viability of a Common, High-Explosive, Airbursting Fuze Technology (U)

(U) The OICW and XM307 Program Offices did not have a common fuze technology for setting, measuring range, and arming the high-explosive, airbursting shells used in the XM25/XM29 and the XM307 Programs. This condition occurred because the then-Program Executive Officer Soldier (PEO Soldier) did not require the OICW and XM307 Program Offices to include in their acquisition strategies and the acquisition plans a common, high-explosive, airbursting fuze technology. Although the XM307 has a fuze technology that is adaptable to the XM25/XM29, the program offices were unsuccessful in getting the XM25/XM29 and XM307 prime contractors to implement a common fuze technology. As a result, the Army will not have an opportunity to achieve a potential ammunition cost avoidance of about \$107.5 million.

Innovative Practices, Prudent Business Judgment, and Program Planning (U)

(U) **Innovative Practices and Prudent Business Judgment.** DoD Directive 5000.1, “The Defense Acquisition System,” May 12, 2003; DoD Instruction 5000.2, “Operation of the Defense Acquisition System,” May 12, 2003; and the “Defense Acquisition Guidebook,” July 2006, provide guidance concerning innovative practices and prudent business judgment.

(U) **DoD Directive.** DoD Directive 5000.1 requires milestone decision authorities and project managers to examine and, as appropriate, adopt innovative practices, including best commercial practices and electronic business solutions that reduce cycle time and cost and encourage teamwork.

(U) **DoD Instruction.** DoD Instruction 5000.2 requires the milestone decision authority and the program manager to use discretion and prudent business judgment to structure a tailored, responsive, and innovative program. In addition, the Instruction authorizes the milestone decision authority to tailor procedures to achieve cost, schedule, and performance goals. The Instruction also requires the project manager to prepare and the milestone decision authority to approve an acquisition strategy at the system development and demonstration phase milestone decision.

(U) **Defense Acquisition Guidebook.** The Defense Acquisition Guidebook states that, based on best business practices, the acquisition strategy should be updated for all subsequent major decisions and program reviews and should reflect the current status and desired end point of the program.

(U) **Acquisition Program Planning.** The Federal Acquisition Regulation; Army Regulation 70-1, “Army Acquisition Policy,” December 31, 2003; and Army Pamphlet 700-56, “Logistics Supportability Planning and Procedures in Army

Acquisition,” December 5, 2005, provide guidance on acquisition program planning, which includes acquisition strategies and acquisition plans applicable to the XM25/XM29 and the XM307 Programs.

(U) Federal Acquisition Regulation. Federal Acquisition Regulation, Subpart 7.104, “General Procedures,” requires a review of the acquisition plan at key dates specified in the plan or whenever significant changes occur and revise it, as applicable.

(U) Army Regulation. Army Regulation 70-1 states that the acquisition strategy is the basis for formulating functional plans and strategies, such as the acquisition plan, and should minimize the time and cost it takes to satisfy identified, validated needs and to maximize affordability throughout a program’s useful life cycle.

(U) Army Pamphlet. Army Pamphlet 700-56 requires program managers to consider standardization in operation, maintenance, and support of material systems to achieve the most efficient use of total resources, which include money, readiness, time, facilities, and natural resources.

Common Caliber and Fuze Technology (U)

(U) In February 2002, an Army contractor conducted a study to determine whether the OICW¹ and Objective Crew Served Weapon (OCSW), which later became the ACSW and then the XM307, should have the same caliber and possibly be capable of firing the same ammunition. After the study, the OICW Program Office did not include the results of that study in the XM25 acquisition strategy and the XM29 acquisition strategy and acquisition plan. However, the XM307 Program Office did update the XM307 acquisition strategy and acquisition plan to address common ammunition for use in the XM25/XM29 and XM307 weapons systems.

(U) Common Caliber and Ammunition Study. On January 22, 2002, the Deputy for Systems Management and Horizontal Technology, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) directed that the OICW and the OCSW have the same caliber and possibly be capable of firing the same ammunition. In response to the Deputy’s request, the OCSW Program Office contracted with Altarum, formerly Vector Research Incorporation, to conduct a comparison study.

(U) Comparison Study. In February 2002, Altarum began a study to determine the feasibility of a common caliber for the OICW and the OCSW Programs. On March 29, 2002, Altarum presented the “Objective Crew Served

¹At the time of the “Objective Crew Served Weapon Caliber Study,” the OICW Program had not yet transitioned to the incremental acquisition approach. That approach occurred in January 2003 and included the kinetic energy system (XM8 [Increment I]) and the stand-alone, high-explosive, airbursting system (XM25 [Increment II]). After those systems were developed, the Army planned to combine them to form the originally conceived OICW (XM29 [Increment III]).

Weapon Caliber Study” to the Joint Service Small Arms Program. The study recommended that:

- a common ammunition or round for each weapon was not feasible; however, a common projectile (internal workings of the fuze and warhead) would be feasible;
- the two weapon systems should utilize the same fuze setting, range determination, and safe and arming mechanism; and
- the two weapon systems should have similar 25-millimeter ammunition.

Although Altarum determined that using similar 25-millimeter ammunition for the OICW and the OCSW would increase the weight of the OICW, it determined that using similar ammunition would allow a reduced cost per OICW ammunition and would increase OICW lethality. Altarum also determined that the OCSW fuze was cheaper to manufacture than the OICW fuze by \$5.48 per fuze. After the study, the PEO Soldier was to determine whether further commonality could be accomplished between the two systems to reduce life-cycle costs and logistics support.

(U) Army Efforts to Achieve a Common Fuze. On March 19, 2003, the Procurement Contracting Officer, Picatinny Center for Contracting and Commerce, U.S. Army TACOM Life Cycle Management Command,² on behalf of the Project Manager Soldier Weapons, directed Alliant Techsystems to cease work on the XM29 20-millimenter ammunition. (See Appendix C for a timeline of events to develop a common fuze technology between the OICW [XM25/XM29] and ACSW [XM307].)

(U) On June 2, 2003, the procurement contracting officer directed Alliant Techsystems to begin work developing a 25-millimeter weapon system and ammunition. Alliant Techsystems was to change the caliber, fuze setting, and range determination of the XM29 and to become a member of a combined XM29 and XM307 integrated product team to develop 25-millimeter ammunition.

(U) Also on June 2, 2003, another procurement contracting officer at the Picatinny Center for Contracting and Commerce issued a letter to General Dynamics Armament and Technical Products, Inc. (General Dynamics), the prime contractor for the XM307 Program. The procurement contracting officer requested that General Dynamics explore possible arrangements with Alliant Techsystems for collaboration in the development of a 25-millimeter family of common ammunition designs. The procurement contracting officer also stated that the Government determined that a family of 25-millimeter projectiles using maximum commonality of components and design was the optimal path for proceeding with the XM25/XM29 and the XM307 Programs.

²Referred to in previous DoD Inspector General reports as the Tank-automotive and Armaments Command.^{*}Originally the XM307 was the Objective Crew Served Weapon, which later became the Advanced Crew Served Weapon and then the XM307, as shown in the timeline “arrow.”

(U) On December 3, 2003, the Director, Individual and Crew Served Systems, General Dynamics issued a letter to the procurement contracting officer in response to his June 2, 2003, letter. In the letter, the Director stated that General Dynamics had coordinated a series of meetings between General Dynamics and Alliant Techsystems to develop a teaming agreement to develop a 25-millimeter common ammunition. Further, the Director stated that they planned to finalize the agreement in the near future.

(U) On January 16, 2004, the procurement contracting officer, who issued the June 2, 2003, letter to Alliant Techsystems, redirected Alliant Techsystems' efforts away from developing a common fuze technology. The procurement contracting officer directed Alliant Techsystems to restart its fuze setting and range determination efforts that it had been pursuing before the June 2, 2003, letter. According to a representative from the OICW Program Office, the redirection of the common fuze technology occurred because efforts to maximize ammunition commonality between programs was not successful. The primary reason was that Alliant Techsystems and General Dynamics could not come to a teaming agreement regarding proprietary data exchange.

(U) In April 2006, a representative from the XM307 Program Office stated that he doubted whether a common round would be developed for the XM25/XM29 and XM307 Programs because:

- the contractors could not come to an agreement,
- a considerable amount of time elapsed during which each program continued to develop its own design, and
- recent program status and funding implications make this a “very dangerous strategy.”

(U) Update of Acquisition Strategies and Plans. The XM307 acquisition strategy and plan and the XM25 acquisition plan had a goal to develop a common, high-explosive, airbursting fuze technology, as suggested by the “Objective Crew Served Weapon Caliber Study,” March 29, 2002. However, the XM25 acquisition strategy and the XM29 acquisition strategy and plan did not include that requirement.

(U) XM307 Acquisition Strategy and Plan. The XM307 acquisition strategy, December 3, 2003, addressed the development of a common, 25-millimeter, low-velocity ammunition for use in the XM25/XM29 and XM307 weapons systems. The strategy stated that, as a minimum commonality goal, the XM25/XM29 was to use the XM307 airbursting projectile and fuze setting technologies.

(U) The XM307 acquisition plan, December 3, 2003, encourages the XM307 system development and demonstration effort to include the development of 25-millimeter, low-velocity, common ammunition for use in the XM25/XM29 weapon systems.

(U) XM25 Acquisition Strategy and Plan. On June 2, 2003, when the XM25 high-explosive, airbursting shell caliber was increased from

20-millimeters to 25-millimeters, the OICW Program Office did not update the OICW acquisition strategy to address the change in caliber. On November 30, 2004, the OICW Program Office prepared a draft XM25 acquisition strategy to address the incremental acquisition process. On June 7, 2005, and November 28, 2005, the OICW Program Office again updated the draft XM25 acquisition strategy; however, these unapproved acquisition strategies did not identify the XM307 airbursting projectile and fuze setting technologies.

(U) On November 12, 2004, the OICW Program Office prepared a draft XM25 acquisition plan that required the OICW Program Office to develop a common component 25-millimeter round with the XM307 Program Manager. On June 7, 2005, and November 28, 2005, the OICW Program Office again updated the draft XM25 acquisition plan. The updates did not change the requirement to develop a common component 25-millimeter round.

(U) According to the Project Manager Soldier Weapons, when the XM25 Program with its 25-millimeter caliber requirement began, the XM25 Program Office intended that the program have a common projectile, as recommended by the study. Further, he stated that the drafts of the XM25 acquisition strategy and plan were to include a common projectile; however, “staffing could not keep up with the changes to the program.”

(U) OICW (XM29) Acquisition Strategy and Plan. After the XM25 high-explosive, airbursting shell caliber was increased from 20-millimeters to 25-millimeters on June 2, 2003, the OICW Program Office did not update the OICW (XM29) acquisition strategy and acquisition plan. The OICW acquisition plan states that the plan will be reviewed at least annually and revised as appropriate, and updated as significant changes are made to the OICW acquisition strategy.

(U) Army Acquisition Executive Memorandum for the Record. On March 22, 2006, the Army Acquisition Executive issued a memorandum to PEO Soldier in which he stated that the XM25 Program will be transitioned back into the technology base to continue the necessary work on the high-explosive, airbursting ammunition and the system. The memorandum also requires the XM25 Program to have a Joint Requirements Oversight Council-approved capabilities document for the high-explosive, airbursting capability and an approved acquisition strategy to proceed beyond the technology development phase of the acquisition process. While the XM25 Program is in the technology development phase, the XM25 Program Office has the opportunity to evaluate and implement a common fuze technology to be compatible with the XM307 Program. (See Appendix D for the Army Acquisition Executive’s memorandum.)

Effect of a Common Caliber and Fuze Technology (U)

(U) Since the then-PEO Soldier did not require the development and implementation of a common fuze technology for high-explosive, airbursting shells, the Army did not have an opportunity to achieve a potential ammunition cost avoidance of about \$107.5 million.

(U) Associated Cost Avoidance per Round. The “Objective Crew Served Weapon Caliber Study,” March 29, 2002, determined the cost of the fuze for the XM29 to be \$20.50 and the cost of the fuze for the OCSW, which later became the XM307, to be \$15.02. By using the XM307 fuze for the XM25/XM29 round, the OICW Program Office would be able to reduce the cost per round by as much as \$5.48.

(U) Ammunition Requirement. The July 1, 1999, OICW Ammunition Requirements document states that the overall requirement for XM29 high-explosive, airbursting ammunition for FY 2004 through FY 2014 is 19,610,740 rounds. As of May 2007, the overall ammunition requirement was unchanged, according to a representative from the OICW Program Office. By applying the \$5.48 cost avoidance to the XM307 fuze and the overall ammunition requirement, the OICW Program Office has the opportunity to put about \$107.5 million (\$5.48 multiplied by 19,610,740 rounds) to better use by requiring the use of the XM307 fuze for the XM25/XM29 round.

Conclusion

(U) The PEO Soldier needs to direct the OICW and XM307 Program Managers to determine whether a common fuze technology for the XM25/XM29 and XM307 Programs is still viable by conducting another study similar to that directed by the Deputy for Systems Management and Horizontal Technology. A study to determine the practicality of implementing the earlier Altarum study recommendations is timely because the XM25 Program has transitioned back into the technology base and the Army is still considering the XM307 Program for future development. (See finding B for a discussion of the XM307 Program.) If the XM25 and XM307 Program Managers determine that a common fuze technology is viable, they then should update their respective acquisition strategies and plans to include a requirement for the development of a common, high-explosive, airbursting fuze technology for the XM25/XM29 and XM307 Programs.

(U) If the OICW and XM307 Program Managers determine that a common fuze technology for their programs is not viable, then the respective acquisition strategies and plans should be updated to reflect a consistent acquisition approach.

Management Comments on the Finding and Audit Response (U)

(U) Summaries of management comments on the finding and audit responses are in Appendix F.

Recommendation, Management Comments, and Audit Response (U)

A. We recommend that the Program Executive Officer Soldier direct the Product Manager Individual Weapons and the Product Manager Crew Served Weapons to:

- 1. Conduct a study to determine whether a common fuze technology is still viable for the Objective Individual Combat Weapon and the XM307 Programs to implement best business practices, as required in DoD Directive 5000.1, “The Defense Acquisition System,” May 12, 2003.**
- 2. Based on the results of the study from Recommendation A.1., implement a common fuze technology for the development for Increments II and III of the Objective Individual Combat Weapon and the XM307 if a common fuze technology is still viable.**
- 3. Based on the results of the study from Recommendation A.1., update the acquisition strategies and acquisition plans for Increments II and III of the Objective Individual Combat Weapon and the XM307 Programs to address changes resulting from the study, in accordance with the Federal Acquisition Regulation, Subpart 7.104, “General Procedures.”**

(U) Deputy for Acquisition and Systems Management Comments. The Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), responding for the Program Executive Officer Soldier, neither concurred nor nonconcurred with the recommendation. He stated that the Project Manager Soldier Weapons addressed the recommendation in his comments, which the Deputy attached to his comments. The Deputy stated that we appeared to have discounted the reality of working with industry and the concerns industry has about protecting its proprietary technology. He further stated that although the Project Manager has made significant efforts to work with industry, his efforts have been unsuccessful. The Deputy also stated that a merged fuze technology for the OICW and XM307 programs was still viable, but might be irrelevant when negotiating with two separate contractors. The Deputy concluded that as the Army moves forward in the high-explosive arena, opportunities may arise to reevaluate a common fuze technology and that the Program Executive Office Soldier will continue to strive for best business practices regarding these efforts. For the complete text of the Deputy’s comments, see the Management Comments section of this report.

(U) Project Manager Soldier Weapons Comments. Although not required to comment, the Project Manager Soldier Weapons disagreed with the recommendation. He stated that the High-Explosive Airburst (XM25) Program, which was in the technology base, and the XM307 Program have been cut back, and that funding was not available to conduct the recommended study. The Project Manager stated that if the Army approved requirements to proceed with both programs and reestablished the funding, he would reconsider the recommendation.

(U) The Project Manager Soldier Weapons stated that while it may be obvious that a similar fuze would create savings, the Army must evaluate the effects of directing two vendors to merge their fuze technologies. However, he stated that an evaluation of common fuze technologies for the XM25 and XM307 Programs did not make good business sense at this time. In this regard, the Project Manager stated that the Army cannot compel the contractors to divulge their proprietary information. For the complete text of the Project Manager's comments, see the Management Comments section of this report.

(U) **Audit Response.** The Army's comments were responsive. Although the Deputy for Acquisition and Systems Management neither concurred nor nonconcurred with the recommendation, his comments and those by Project Manager Soldier Weapons met the intent of our recommendation. Specifically, the Deputy stated that the Army may reevaluate a common fuze technology as opportunities arise in the high-explosive arena and the Project Manager stated that he would reconsider the recommendation if both programs were approved and funded to proceed. Therefore, no further comments are required.

(U) Regarding working with industry, we disagree that we discounted the reality of working with industry and the concerns industry has about protecting its proprietary technology. We realize that working with contractors to establish a teaming agreement regarding proprietary data exchange can be difficult; however, sometimes additional effort is needed to acquire from industry systems that efficiently and effectively satisfy warfighter needs at a cost-effective and reasonable price. While the XM25 Program is in the technology development phase, the XM25 Program Office still has the opportunity to evaluate and implement a common fuze technology to be compatible with the XM307 Program.

B. Program Management of the XM307 (U)

(U) The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process before the Joint Requirements Oversight Council approved the warfighter requirements for the XM307. This condition occurred because the XM307 Program Office:

- began the system development and demonstration phase for the XM307 Program without a milestone decision review and an authorizing acquisition decision memorandum, and
- used the requirement for the Close Common Support Weapon identified in the April 2003 operational requirements document for the Future Combat Systems (FCS) to authorize the contractor to develop the XM307.

As a result, the FCS and the XM307 Program Offices prematurely spent about \$98.1 million in research, development, test, and evaluation funds on developing the XM307 Program. In this regard, the FCS Program Manager planned to spend an additional \$93.3 million in those funds for the program without assurance that the XM307 will satisfy warfighter requirements. Before the completion of the audit, the Army initiated plans to withdraw \$80.1 million of the \$93.3 million from the program and to use the remaining \$13.2 million to close out the contract.

Acquisition and Capability Documentation Guidance (U)

(U) DoD Directive 5000.1; DoD Instruction 5000.2; and Chairman of the Joint Chiefs of Staff Instruction 3170.01E, "Joint Capabilities Integration and Development System," May 11, 2005, provide guidance on acquisition and capability documentation.

(U) DoD Directive. DoD Directive 5000.1 states that the milestone decision authority is the designated individual with overall responsibility for a program, including the authority to approve entry of an acquisition program into the next phase of the acquisition process. In addition, the Directive requires the Chairman of the Joint Chiefs of Staff to provide advice and assessment on military capability needs through validated and approved capabilities documents.

(U) DoD Instruction. DoD Instruction 5000.2 requires the milestone decision authority to approve the start of an acquisition program at the system development and demonstration decision. The Instruction also requires the milestone decision authority to document in an acquisition decision memorandum the decision to start an acquisition program. Further, the Instruction identifies the capability development document as a document that supports the system development and demonstration decision review.

(U) Joint Chiefs of Staff Instruction. Chairman of the Joint Chiefs of Staff Instruction 3170.01E states that the Joint Requirements Oversight Council is the final validation and approval authority for capability development documents for programs that have the potential for joint interest.

Managing the Future Combat System's XM307 (U)

(U) The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process without a milestone decision review, an acquisition decision memorandum, and a requirements document approved by the Joint Requirements Oversight Council.

(U) XM307 Milestone Decision Review and Acquisition Decision

Memorandum. On December 30, 2003, the XM307 Program began the system development and demonstration phase when the Army Acquisition Executive signed the XM307 acquisition strategy report, according to a representative from the XM307 Program Office. Subsequently, on April 30, 2004, the Picatinny Center for Contracting and Commerce awarded contract W15QKN-04-C-1093 for \$94.8 million to General Dynamics Armament and Technical Products. The statement of work for the contract defined the requirements for the system development and demonstration of the XM307 and required the contractor to support the integration of the XM307 into the FCS. The XM307 Program Office and the Picatinny Center for Contracting and Commerce took those actions without the Army Acquisition Executive:

- holding a milestone decision review to authorize the start of the XM307 Program; and
- documenting approval in an acquisition decision memorandum, as required.

(U) XM307 Requirement. When the XM307 Program began the system development and demonstration phase, the XM307 did not have a Joint Requirements Oversight Council-approved operational requirements document or a capability development document. After the award of contract W15QKN-04-C-1093, the Assistant Secretary of the Army (Financial Management and Comptroller) withdrew approximately \$117 million in research, development, test, and evaluation funding for the XM307 Program. The Assistant Secretary withdrew the funds because the XM307 Program did not have a valid requirements document, according to a representative from the Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). To compensate for the funding shortfall, the FCS Program Office decided to fund the XM307 Program based on the Common Close Support Weapon requirement in the April 14, 2003, version of the FCS operational requirements document. The operational requirements document states that:

1.22.1 System Description. The Common Close Support Weapon (CCSW) is a crew served weapon incorporating the latest advancement in electronics, materials, and small arms technology. The CCSW will be vehicular mounted and employed as a primary armament or secondary defensive armament depending upon specific platform. The CCSW will permit extremely accurate

placement of munitions across the full continuum of combat operations. The CCSW will be capable of day/night and adverse weather engagements to 1500 meters (Threshold), 2000 meters (Objective) while stationary or on the move in a 360-degree horizontal at elevations from -20 degrees to +60 degrees or more. Targets engaged include stationary or moving ground personnel and lightly armored vehicles. Effects are scalable from lethal to non-lethal. This weapon system will be capable of firing multiple types of ammunition: anti-personnel, armor piercing, area effects, incendiary, non-lethal, and tracer from a common magazine. The CCSW will allow for embedded training. It should also be light in weight to dismount for ground operations.

2.0.4.1.1. FCS Manned Systems (with the exception of MV-E [Medical Vehicle-Evacuation], MV-T [Medical Vehicle-Treatment]) must conduct day/night and adverse weather engagements to 1500 m [meters] (Threshold), 2000 m (Objective) while stationary or on the move in a 360-degree horizontal at elevations from -20 degrees to +60 degrees or more with a common close support weapon. Targets engaged include stationary or moving ground personnel and lightly armored vehicles. Effects are scalable from lethal to non-lethal. This weapon system will be capable of firing multiple types of ammunition: anti-personnel, armor piercing, area effects, incendiary, non-lethal, and tracer from a common magazine (selectable by the crew) with a selectable default setting. The system will have automatic ammunition loading with a manual back-up. The system must provide self or remote correction of malfunctions. The weapon system must be capable of being fired from a protected position and remote firing by the crew positioned up to 1,000 m (Objective) off the platform. (See Annex I) **[ORD 1579]**

(U) The July 11, 2006, version of the operational requirements document for the FCS contained essentially the same wording for the Common Close Support Weapon requirement. As written, the operational requirements document for the FCS did not provide detailed requirements to develop the XM307. A representative from the Army Deputy Chief of Staff (G-3/5/7) agreed that the operational requirements document for the FCS did not contain sufficient detail to develop the XM307 weapon system. Further, the Joint Requirements Oversight Council validation of the operational requirements document for the FCS did not specifically address whether the Army would be required to prepare a separate and more detailed requirements document for the XM307.

Effects of Managing the XM307 (U)

(U) By not completing the requirements process and not obtaining milestone decision authority approval before beginning the system development and demonstration phase for the XM307 Program, the FCS and the XM307 Program Offices prematurely spent about \$98.1 million in research, development, test, and evaluation funds on the XM307 Program.

(U) Army Acquisition Executive Reduction of Funds. The FCS Program Manager planned to spend an additional \$93.3 million in FY 2007 research, development, test, and evaluation funds for the program without assurance that the XM307 will satisfy warfighter requirements. During the audit, we questioned how the Army could expend \$98.1 million in research, development, test, and evaluation funds without having a valid requirement for the XM307 Program. Before the completion of the audit, the Army Acquisition Executive issued a

memorandum, “Future Combat Systems (FCS) Program Objective Memorandum (POM) Adjustments,” January 11, 2007, in which he stated that:

The development of the XM307 armament system will no longer be funded by FCS [Future Combat Systems] because it will be treated as an ‘objective requirement.’ Instead, existing (in U.S. Army inventory) crew-served weapons will be used in lieu of the XM307.

Consequently, the FCS Program Manager plans to withdraw \$80.1 million of the \$93.3 million in research, development, test, and evaluation funds for the program, according to a representative from the Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). For the remaining \$13.2 million, the Program Manager plans to use those funds to close out the XM307 Program contract.

(U) Congressional Plus-Up. The House of Representatives Conference Report 109-676, “Making Appropriations for the Department of Defense for the Fiscal Year Ending September 30, 2007, and for Other Purposes,” September 25, 2006, appropriated funds for the XM307 Program. The Conference Report appropriated \$3.25 million in FY 2007 research, development, test, and evaluation funds for the XM307 25-millimeter, Advanced Crew Served Weapon System. In early May 2007, the XM307 Program Office had not obligated \$2.715 million of the \$3.25 million, according to a representative from the Office of the Assistant Secretary of the Army (Financial Management and Comptroller). On May 22, 2007, after consultation with the audit team, the Office of the Assistant Secretary withdrew \$2.697 million of the \$2.715 million and plans to withdraw the remaining \$18,000 in FY 2007 research, development, test, and evaluation congressional plus-up funds.

Conclusion (U)

(U) The Assistant Secretary of the Army (Acquisition, Logistics, and Technology) needs to discontinue further development, including future contracts or modifications, and research, development, test, and evaluation funding of the XM307 Program until the program has approved warfighter requirements and approval for entry into the system development and demonstration phase of the acquisition process. Those approved warfighter requirements would be a stand-alone requirements document that the Joint Requirements Oversight Council has approved. Approval to enter the system development and demonstration phase would include a milestone decision review and an acquisition decision memorandum that specifically approves the XM307 Program for entry into the system development and demonstration phase.

Management Comments on the Finding and Audit Response (U)

(U) Summaries of management comments on the finding and audit responses are in Appendix F.

Recommendations, Management Comments, and Audit Response (U)

(U) Revised, Added, and Renumbered Recommendations. In response to the draft report, the Deputy for Acquisition and Systems Management, responding for the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), referenced comments by the Deputy Program Manager, Operations, Future Combat Systems (Brigade Combat Team [BCT]). The Deputy Program Manager stated that the XM307 was a low-level component of the FCS Program and not one of the FCS subsystems. During the audit, a representative from the Office of the Director, Program Analysis and Evaluation stated that the FCS has 18 different subsystems with additional complementary programs. He explained that the complementary programs are stand-alone acquisition programs that must have their own acquisition program documentation, such as a capability development document, acquisition strategy, and a test and evaluation master plan. Because the XM307, which is to be integrated into the FCS, is not one of the FCS subsystems, it must be considered a complementary program. As a complementary program, the XM307 Program must have an approved stand-alone requirements document and associated acquisition program documentation. Therefore, we revised Recommendation B.1. to recommend that the XM307 have a stand-alone requirements document that the Joint Requirements Oversight Council has approved instead of recommending that the XM307 have a stand-alone requirements document or that the FCS operational requirements document be updated to contain sufficient detail to address XM307 capabilities.

(U) In his comments, the Deputy for Acquisition and Systems Management referred to comments provided by the Project Manager Soldier Weapons. The Project Manager stated that his office was ending FCS-funded development activities for the XM307. However, he stated that he intended to pursue guidance on using FY 2007 congressional plus-up funds, which are not FCS funds, to mature various components of the XM307. We continue to believe that the Army should have a valid requirements document for the XM307, a milestone review, and approval for entry of the program into the system development and demonstration phase of the acquisition process before the Army spends additional funds on the program. Therefore, we added Recommendation B.2. in which we recommend that the Assistant Secretary of the Army (Financial Management and Comptroller) not fund any additional work on the XM307 Program, or any iteration of the XM307 Program, until the program has a stand-alone requirements document approved by the Joint Requirements Oversight Council, a milestone decision review, and an acquisition decision memorandum that approves the XM307 Program for entry into the system development and demonstration phase of the acquisition process, in accordance with DoD Instruction 5000.2. As a result of adding Recommendation B.2., we renumbered Recommendation B. to Recommendation B.1.

(U) B.1. We recommend that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) discontinue further development, including future contracts or modifications, and research, development, test, and evaluation funding of the XM307 Program, until the program has:

- **a stand-alone requirements document that the Joint Requirements Oversight Council has approved in accordance with Chairman of the Joint Chiefs of Staff Instruction 3170.01E, “Joint Capabilities Integration and Development System,” May 11, 2005; and**
- **a milestone decision review and an acquisition decision memorandum that approves the XM307 Program for entry into the system development and demonstration phase of the acquisition process, in accordance with DoD Instruction 5000.2, “Operation of the Defense Acquisition System,” May 12, 2003.**

(U) Deputy for Acquisition and Systems Management Comments. The Deputy for Acquisition and Systems Management, responding for the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), neither concurred nor nonconcurred with the recommendation. He stated that disagreement existed between the acceptability of the FCS requirements document and its relationship to complementary and supporting systems. The Deputy then referred to comments provided by the Project Manager Soldier Weapons. He stated that the Project Manager's comments addressed those disparities and clarified that the XM307 Program was aligned with the requirements and desires of the Army and the Office of the Secretary of Defense leadership. The Deputy then referred to comments provided by the Deputy Program Manager, Operations, Future Combat Systems (BCT) in response to the discussion draft of this report. The Deputy Program Manager stated that:

. . . the document refers to a lack of a Milestone B [decision to enter the system development and demonstration phase of the acquisition process] and a lack of approved requirements documents. Perhaps your office may not be aware that the FCS is an ACAT [Acquisition Category] 1D System of Systems program which passed Milestone B and entered System Design [sic] and Development [sic] phase in 3QFY03 [the third quarter of FY 2003]. The PM [Program Manager] FCS believes the operational requirements supporting the acquisition of the XM307 materiel solution are fully embodied in the Joint Requirements Oversight Council approved FCS Objective [sic] Requirements Document. The FCS program has an approved Acquisition Strategy, Acquisition Plan and Acquisition Decision Memorandum (ADM) from the Defense Acquisition Executive.

For the complete text of the Deputy's comments, see the Management Comments section of this report.

(U) Project Manager Soldier Weapons Comments. Although not required to comment, the Project Manager Soldier Weapons disagreed with the recommendation. He stated that the FCS Program had a valid requirements document and that the XM307 Program did not need a stand-alone requirements document because:

- the XM307 Program was an “objective requirement” of the FCS Program as specified in the Army Acquisition Executive memorandum, “Future Combat Systems (FCS) Program Objective Memorandum (POM) Adjustments,” January 11, 2007; and
- the Deputy Program Manager, Operations, Future Combat Systems (BCT) supported that position.

(U) The Project Manager disagreed with discontinuing further development and funding of the XM307 until the program had an approved stand-alone requirements document, a milestone decision review, and an acquisition decision memorandum. However, he stated that his office was ending FCS-funded development activities for the XM307 Program as directed by the Army Acquisition Executive. Further, the Project Manager stated that his office will efficiently close out all XM307 activities to ensure best value to the Government while properly archiving all data for the FCS objective requirement. Finally, the Project Manager stated that he intended to pursue guidance on using FY 2007 congressional plus-up funds, which are not FCS funds, to mature various components of the XM307. For the complete text of the Project Manager’s comments, see the Management Comments section of this report.

(U) Audit Response. The Army’s comments were not fully responsive. Although the Deputy for Acquisition and Systems Management neither concurred nor nonconcurred with the recommendation, his comments and those of the Project Manager Soldier Weapons indicate that they may continue to develop and fund the XM307 Program without an approved requirements document, a milestone decision review, and an acquisition decision memorandum. They continue to believe that the XM307 Program was included in the FCS operational requirements document and therefore, the program did not need a stand-alone requirements document even though the Deputy Program Manager, Operations, Future Combat Systems (BCT) indicated that the XM307 was a low-level component of the FCS Program and not one of the FCS subsystems.

(U) When the XM307 Program began the system development and demonstration phase in December 2003, the XM307 was not part of the FCS Program and did not have a Joint Requirements Oversight Council-approved operational requirements document, a capability development document, or an acquisition decision memorandum approving entry into the system development and demonstration phase as required for a complementary program to the FCS Program. As a result, after the award of the contract for system development, the Assistant Secretary of the Army (Financial Management and Comptroller) withdrew approximately \$117 million in research, development, test, and evaluation funds for the XM307 Program. The Assistant Secretary withdrew those funds because the XM307 Program did not have a valid requirements document according to a representative from the Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). To compensate for the

funding shortfall, the FCS Program Office decided to fund the XM307 Program based on the Common Close Support Weapon requirement in the April 14, 2003, version of the FCS operational requirements document. However, a representative from the Army Deputy Chief of Staff (G-3/5/7) stated that the operational requirements document for the FCS did not contain sufficient detail to develop the XM307 weapon system. Specifically, the FCS operational requirements document did not include Close Combat Support Weapon requirements that were specific enough to generate system requirements and key performance parameters for the XM307.

(U) Regarding the Deputy's comments about the FCS relationship to complementary and supporting systems, a representative from the Office of the Director, Program Analysis and Evaluation stated that the FCS has 18 different subsystems with additional complementary programs. The representative stated that program offices, which are separate from the FCS Program Office, manage the complementary programs. The FCS Program Office later integrates those complementary programs into the FCS. He also explained that the complementary programs are stand-alone acquisition programs that must have their own acquisition program documentation, such as a capability development document, acquisition strategy, and a test and evaluation master plan. Because the XM307, which is to be integrated into the FCS, is not one of the FCS subsystems, it must be considered a complementary program. In addition, comments provided by the Deputy Program Manager, Operations, Future Combat Systems (BCT) support the position that the XM307 is a complementary program. He stated that the XM307 was a low-level component of the FCS Program and not one of the FCS subsystems. As a complementary program, the XM307 Program must have an approved stand-alone requirements document and associated acquisition program documentation.

(U) Regarding the FCS milestone decision to enter the system development and demonstration phase of the acquisition process, the Deputy Program Manager, Operations, Future Combat Systems (BCT) implied that the FCS milestone decision also applied to the XM307 Program. We do not agree with that position. On May 17, 2003, the Under Secretary of Defense for Acquisition, Technology, and Logistics issued a memorandum, "Future Combat Systems (FCS) Acquisition Decision Memorandum," that approved the entry of the FCS Program into the system development and demonstration phase. The only reference to a complementary system was where the Under Secretary stated that the Office of the Secretary of Defense will apply a special management oversight and review process to ensure synchronization of complementary systems and external interfaces. Further, if the XM307 Program was addressed in the FCS milestone decision, the Army Acquisition Executive should have signed the XM307 acquisition strategy report before the FCS milestone decision and not over 7 months later on December 30, 2003, when the program began system development and demonstration. In addition, if the FCS Program included the XM307 Program, the XM307 would not have required a separate acquisition strategy.

(U) We disagree with the statement by the Project Manager Soldier Weapons that the XM307 Program did not need a stand-alone requirements document. In his January 11, 2007, memorandum, the Assistant Secretary of the Army

(Acquisition, Logistics, and Technology) stated that the development of the XM307 armament system will no longer be funded by FCS because it will be treated as an “objective requirement.” Instead, the FCS Program will use existing crew served weapons in U.S. Army inventory instead of the XM307.

(U) Even though the Assistant Secretary stated that the XM307 would be treated as an “objective requirement,” he did not specify whether the FCS operational requirements document included the XM307 Program or whether the XM307 Program needed a stand-alone requirements document. As discussed above, the Deputy Program Manager, Operations, Future Combat Systems (BCT) indicated that the XM307 was a low-level component of the FCS and not one of the FCS subsystems. Because the XM307 is not one of the FCS subsystems, it must be considered a complementary program. As a complementary program, the XM307 Program must have an approved stand-alone requirements document and associated acquisition program documentation.

(U) Although the Deputy for Acquisition and Systems Management neither concurred nor nonconcurred with the recommendation, his comments and those of the Project Manager Soldier Weapons indicate that the Project Manager may continue to develop and fund the XM307 Program without an approved requirements document, a milestone decision review, and an acquisition decision memorandum. We continue to believe that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) should not permit any further expenditure of funds on the XM307 Program until the program has approved warfighter requirements and approval for entry into the system development and demonstration phase of the acquisition process. Therefore, we request that the Assistant Secretary review his office’s position on this recommendation and provide additional comments on the recommendation in his response to the final report.

(U) B.2. We recommend that the Assistant Secretary of the Army (Financial Management and Comptroller) not fund any additional work on the XM307 Program, or any iteration of the XM307 Program until the program has a stand-alone requirements document approved by the Joint Requirements Oversight Council, a milestone decision review, and an acquisition decision memorandum that approves the XM307 Program for entry into the system development and demonstration phase of the acquisition process, in accordance with DoD Instruction 5000.2, “Operation of the Defense Acquisition System,” May 12, 2003.

(U) We request that the Assistant Secretary of the Army (Financial Management and Comptroller) provide comments on this recommendation in response to the final report.

C. Program Management of the XM307G (U)

(U) The then-Program Executive Officer Soldier (PEO Soldier) prematurely, and without authority, approved the XM307G Program to enter the system development and demonstration phase of the acquisition process. This condition occurred because the then-PEO Soldier:

- issued an acquisition decision memorandum approving the XM307G for entry into the system development and demonstration phase of the acquisition process without being designated as the XM307G milestone decision authority by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), and
- approved entry of the XM307G into the system development and demonstration phase without approved warfighter requirements and full funding.

Because the XM307G Program was not funded, the XM307G Program Office contends that it has not yet expended funds developing a weapon system that was not supported by a validated and approved warfighter requirements document. However, as of May 2007, the XM307 Program Office has spent about \$400,000 in FY 2007 research, development, test, and evaluation congressional plus-up funds on the dismounted version of the XM307 (XM307G).

Acquisition and Capability Documentation Guidance (U)

(U) DoD Instruction 5000.2, Army Regulation 70-1, and Chairman of the Joint Chiefs of Staff Instruction 3170.01E provide guidance on designation of milestone decision authorities, acquisition and capability documentation, and full funding.

(U) DoD Instruction. DoD Instruction 5000.2 requires full funding at the transition of acquisition programs into the system development and demonstration phase of the acquisition process. The instruction identifies documents that support the system development and demonstration decision review, such as the capability development document.

(U) Army Regulation. Army Regulation 70-1 requires that the milestone decision authority for acquisition category III programs be the general officer or member of Senior Executive Service to whom this responsibility has been designated by the Army Acquisition Executive (the Assistant Secretary of the Army [Acquisition, Logistics, and Technology]). Further, the Regulation states that the Army Deputy Chief of Staff (G-3/5/7) validates and integrates the review and evaluation of materiel requirements and critical operational issues and criteria for all acquisition category programs.

(U) Joint Chiefs of Staff Instruction. Chairman of the Joint Chiefs of Staff Instruction 3170.01E states that the Joint Requirements Oversight Council is the final validation and approval authority for initial capability documents and capability development documents for programs that have the potential for joint interest.

Designation of Milestone Decision Authority (U)

(U) On June 24, 2005, the then-PEO Soldier signed an acquisition decision memorandum for the XM307G Program. That memorandum authorized the XM307G Program for entry into the system development and demonstration phase of the acquisition process. In September 2006, we asked the Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) for documentation that designated the PEO Soldier as the milestone decision authority for the XM307G. The Office of the Assistant Secretary did not have documentation indicating that the then-PEO Soldier was ever designated as the milestone decision authority for the XM307G. On May 16, 2007, in response to the draft report, the PEO Soldier rescinded the acquisition decision memorandum that allowed the XM307G Program to enter the system development and demonstration phase. (See Appendix E for the then-PEO Soldier's acquisition decision memorandum.)

Transition of the XM307G Into System Development and Demonstration (U)

(U) When the then-PEO Soldier transitioned the XM307G Program into the system development and demonstration phase of the acquisition process on June 24, 2005, he did so before having approved warfighter requirements and having obtained full funding for the program.

(U) XM307G Acquisition and Capability Documentation. The then-PEO Soldier used the June 2005 XM307G acquisition strategy to support his approval of the XM307G Program for entry into the system development and demonstration phase. However, that acquisition strategy was not supported by an approved requirements document. The acquisition strategy listed an April 25, 2005, U.S. Army Infantry Center memorandum and a February 2005 initial capabilities document for the OCSW as documents that described XM307G requirements. The acquisition strategy also cited the February 19, 2004, operational requirements document for the Family of Stryker Vehicles as a source document for the XM307G acquisition.

(U) U.S. Army Infantry Center Memorandum. On April 25, 2005, the Commanding General, U.S. Army Infantry Center, issued a memorandum, "Remote Weapon System (RWS) Capabilities Improvements with XM307," through the Director, Capabilities Developments, U.S. Army Training and Doctrine Command, to the Deputy Chief of Staff (G-8). In the memorandum, the Commanding General recommended integrating the XM307 mounted and dismounted technology into Stryker vehicles. The June 24, 2005, acquisition

decision memorandum stated that the XM307G Program would address only the dismounted variant of the XM307. The U.S. Army Training and Doctrine Command had the Commanding General's memorandum, but had not yet produced a requirements document for the XM307G, as of May 2007. If the U.S. Army Training and Doctrine Command produces a requirements document for the XM307G, the Joint Requirements Oversight Council would need to approve the document in accordance with the Chairman of the Joint Chiefs of Staff Instruction 3170.01E.

(U) Initial Capabilities Document. Although the February 2005 initial capabilities document for the OCSW showed a requirement for a dismounted variant (XM307G), the Army Deputy Chief of Staff (G-3/5/7) did not approve that document, according to a representative from that office.

(U) Operational Requirements Document. According to an Army Deputy Chief of Staff (G-3/5/7) representative, the Deputy Chief of Staff determined that the February 19, 2004, operational requirements document for the Family of Stryker Vehicles did not sufficiently support a requirement for the XM307G. The support was not sufficient because that operational requirements document did not adequately describe the capability requirements for the XM307G.

(U) Full Funding for the XM307G. The XM307G Program did not have full funding when it transitioned into the system development and demonstration phase of the acquisition process. On June 23, 2005, the XM307 Project Manager issued a memorandum, "Milestone B In-Process Review for the XM307G Advanced Crew Served Weapon System for use on the Stryker Family of Vehicles as a ground mounted system." In the memorandum, the Project Manager stated that the XM307G required \$97 million in unfunded research, development, test, and evaluation funds and \$570 million in unfunded procurement funds for FY 2004 through FY 2009. The June 24, 2005, acquisition decision memorandum stated that "the Project Manager shall provide a status update identifying the availability of funds and the program requirements within six months."

(U) XM307G Program Unfunded. In May 2007, a representative from the XM307G Program Office stated that the XM307G Program was unfunded and that the Army had not spent any funds on the XM307G Program. The representative believed that XM307G development in the system development and demonstration phase would begin after the XM307G Program Office obtained an approved requirements document and full funding of the program.

(U) XM307 Program Funding. Although the XM307G Program was supposedly unfunded, a representative from the XM307 Program Office stated that the XM307 Program Manager has spent about \$400,000 in FY 2007 congressional plus-up funds on the dismounted version of the XM307 (XM307G), as of May 2007. Those congressional plus-up funds were a portion of the \$3.25 million in FY 2007 research, development, test, and evaluation funds appropriated in the House of Representatives Conference Report 109-676, September 25, 2006, for the XM307 25-millimeter, Advanced Crew Served Weapon System. The Conference Report stated that the congressional plus-up

funds were for the Army to pursue new technologies and capabilities for the Stryker vehicles, including the addition of the XM307 weapon. The representative from the XM307 Program Office stated that the XM307 Program Office was using the congressional plus-up funding to support the system development of the XM307 and not the XM307G. However, the congressional plus-up funding was supporting the XM307G because the XM307 did not have a dismounted variant.

(U) In early May 2007, the XM307 Program Office had \$2.715 million of the \$3.25 million in FY 2007 research, development, test, and evaluation congressional plus-up funds remaining, according to a representative from the Office of the Assistant Secretary of the Army (Financial Management and Comptroller). On May 22, 2007, after consultation with the audit team, the Office of the Assistant Secretary withdrew \$2.697 million of the \$2.715 million from the Program Executive Office Soldier and plans to withdraw the remaining \$18,000.

Effect of Prematurely Entering System Development and Demonstration (U)

(U) By the then-PEO Soldier prematurely, and without authority, approving the entry of the XM307G Program into the system development and demonstration phase of the acquisition process, the XM307G Program Office began the process to develop the program without an approved requirements document and full funding for the program. Until the XM307G Program has approved requirements, full funding, and milestone decision authority approval to enter the system development and demonstration phase of the acquisition process, the XM307G Program Office should not expend taxpayer funds to develop the program.

Conclusion (U)

(U) Until the Joint Requirements Oversight Council approves a requirements document for the XM307G Program, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) should discontinue further development efforts, including efforts to acquire funding for future contracts to develop the XM307G Program. If the Army later has a validated and approved requirements document and full funding for the XM307G, the Assistant Secretary, or a milestone decision authority designated by the Assistant Secretary, should approve the reentry of the program into the system development and demonstration phase of the acquisition process.

Recommendations, Management Comments, and Audit Response (U)

(U) **Added and Renumbered Recommendations.** In response to the draft report, the Deputy for Acquisition and Systems Management, responding for the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), implied that the Army had requirements for the XM307G Program as part of the FCS

Program. However, we continue to believe that the Army does not have a valid requirements document for the XM307G and should not develop or provide research, development, test, and evaluation funding for the XM307G Program until the program has a requirements document approved by the Joint Requirement Oversight Council, full funding, and an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). Therefore, we added Recommendation C.2. in which we recommend that the Assistant Secretary of the Army (Financial Management and Comptroller) not fund any additional work on the XM307G Program, or any iteration of the XM307G Program, until the program has a requirements document approved by the Joint Requirement Oversight Council; and an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), in accordance with DoD Instruction 5000.2. As a result of adding Recommendations C.2., we renumbered Recommendations C.1. and C.2. in the draft report to Recommendations C.1.a. and C.1.b., respectively.

(U) C.1. We recommend that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology):

- a. Rescind the June 24, 2005, acquisition decision memorandum for the XM307G Program, thereby removing the program from the system development and demonstration phase of the acquisition process to comply with requirements in Army Regulation 70-1, “Army Acquisition Policy,” December 31, 2003.**

(U) Deputy for Acquisition and Systems Management Comments. The Deputy for Acquisition and Systems Management, responding for the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), concurred with the recommendation to rescind the June 24, 2005, acquisition decision memorandum for the XM307G. However, the Deputy supported the Project Manager Soldier Weapons position that the Program Executive Office Soldier, the office that originated the memorandum, should rescind the document. For the complete text of the Deputy’s comments, see the Management Comments section of this report.

(U) Project Manager Soldier Weapons Comments. Although not required to comment, the Project Manager Soldier Weapons agreed with the recommendation. He stated that the Program Executive Office Soldier should rescind the June 24, 2005, acquisition decision memorandum because the then-PEO Soldier signed that memorandum. Further, he stated that the memorandum to rescind the June 24, 2005, acquisition decision memorandum would be submitted to the PEO Soldier for signature. For the complete text of the Project Manager’s comments, see the Management Comments section of this report.

(U) Audit Response. The Army’s comments were responsive. The proposed actions by the Deputy for Acquisition and Systems Management to have the Program Executive Office Soldier rescind the June 24, 2005, acquisition decision memorandum for the XM307G met the intent of our recommendation. After we issued the draft report and received the Army’s comments, the Program Executive

Officer Soldier rescinded the acquisition decision memorandum that allowed the XM307G Program to enter the system development and demonstration phase. No further comments are required.

b. Not allow development, including future contracts or modifications, and research, development, test, and evaluation funding of the XM307G Program until the program has a requirements document approved by the Joint Requirement Oversight Council; full funding; and an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), in accordance with DoD Instruction 5000.2, “Operation of the Defense Acquisition System,” May 12, 2003.

(U) Management Comments. The Deputy for Acquisition and Systems Management, responding for the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), nonconcurred with the recommendation. He stated that the requirements approved through program reviews of the FCS Program remain intact. Further, the Deputy stated that he nonconcurred with ceasing work on the high-explosive, airbursting technology and the requirement for a close combat support weapon for the FCS Program.

(U) Audit Response. The comments from the Deputy for Acquisition and Systems Management were not fully responsive. The Deputy implied that the FCS requirements document justified the continuation of the XM307G Program. The June 2005 XM307G acquisition strategy, which the then-PEO Soldier used to support his approval of the XM307G Program for entry into the system development and demonstration phase of the acquisition process, did not reference FCS requirements. The description of requirements section of the XM307G acquisition strategy listed an April 25, 2005, U.S. Army Infantry Center memorandum and a February 2005 initial capabilities document for the OCSW as documents that described XM307G requirements. The acquisition strategy also cited the February 19, 2004, operational requirements document for the Family of Stryker Vehicles as a source document for the XM307G acquisition. However, an Army Deputy Chief of Staff (G-3/5/7) representative stated that the Deputy Chief of Staff did not approve the February 2005 initial capabilities document for the OCSW. The representative also stated that the Deputy Chief of Staff determined that the February 19, 2004, operational requirements document was not sufficient to support a requirement for the XM307G. Further, as of May 2007, the U.S. Army Training and Doctrine Command had not produced a requirements document for the XM307G.

(U) In addition, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) stated that the XM307G did not have approved capability requirements and approval to enter the system development and demonstration phase of the acquisition process. Specifically, on September 16, 2005, the Assistant Secretary issued a memorandum, “Milestone Decision Authority (MDA) Designation for Program Executive Officer (PEO) Soldier Programs,” to the PEO Soldier, in which he stated that the capability documentation for the stand-alone OCSW (XM307G) was under development and had not yet undergone Army

staffing. Further, the Assistant Secretary stated that when a final decision is made concerning the OCSW, the system would be given the appropriate acquisition category level upon program initiation (entry into the system development and acquisition phase).

(U) Although the Deputy implied that the FCS requirements justified the continuation of the XM307G Program, he did not address full funding for the program and the need for an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). We continue to believe that the Assistant Secretary should not permit any further expenditure of funds on the XM307 Program until the program has approved warfighter requirements, full funding, and appropriate approval for entry into the system development and demonstration phase of the acquisition process. Therefore, we request that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) review his office's position on this recommendation and that he provide additional comments on the recommendation in response to the final report.

(U) C.2. We recommend that the Assistant Secretary of the Army (Financial Management and Comptroller) not fund any additional work on the XM307G Program, or any iteration of the XM307G Program, until the program has a requirements document approved by the Joint Requirement Oversight Council; and an acquisition decision memorandum approval by a milestone decision authority designated by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), in accordance with DoD Instruction 5000.2, "Operation of the Defense Acquisition System," May 12, 2003.

(U) We request that the Assistant Secretary of the Army (Financial Management and Comptroller) provide comments on the recommendation in response to the final report.

Appendix A. Scope and Methodology

(U) We reviewed the following documentation and information dated from May 1994 through June 2006 to accomplish the audit objective:

- OICW Program documents including the OICW ammunition requirements and costs, July 1, 1999; the XM29 original acquisition strategy, March 17, 2000; the OICW special license agreement, August 24, 2000; the OICW Increment II acquisition strategies dated November 30, 2004, June 7, 2005, and November 28, 2005; and the OICW Increment II acquisition plans dated November 12, 2004, June 7, 2005, and November 28, 2005;
- XM307 Program documents including the OCSW Amendment of Solicitation/Modification of Contract DAAA21-94-C-0049 (P00006), August 7, 1995; the OCSW Amendment of Solicitation/Modification of Contract DAAA21-94-C-0049 (P00014), March 25, 1996; the “Objective Crew Served Weapon Caliber Study,” March 29, 2002; the ACSW acquisition strategy, December 3, 2003; the ACSW acquisition plan, December 3, 2003; the ACSW Justification and Approval for Contract DAAA21-94-C-0049, December 18, 2003; and the OCSW initial capabilities document, February 7, 2005;
- XM307G Program documents including the acquisition program baseline for the XM307G, June 24, 2005; and the acquisition strategy report for the XM307G, June 2005;
- contractual documents for the ACSW Program, which includes the OCSW contract DAAA21-94-C-0049 with GenCorp Aerojet Ordnance, and the XM307 contract W15QKN-04-C-1093 with General Dynamics Armament and Technical Products;
- XM307 budget documents including the Army Research, Development, Test, and Evaluation Budget Item Justification (R2 Exhibit), Program Element 0604601A – Infantry Support Weapons, Project 033, February 2004; and the Army Research, Development, Test, and Evaluation Budget Item Justification (R2 Exhibit), Program Element 0604601A – Infantry Support Weapons, February 2005;
- Future Combat Systems Program documents including the “Operational Requirements Document for the Future Combat Systems,” April 14, 2003; “Operational Requirements Document for the Future Combat Systems,” September 23, 2004; and the Army Research, Development, Test, and Evaluation Budget Item Justification (R2a Exhibit), Program Element 0604645A – Armored Systems Modernization, Project F57, February 2006;
- Alliant Techsystems documents including Army correspondence dated March 19, 2003, June 2, 2003, and January 16, 2004;

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- General Dynamics documents including the General Dynamics-Ordnance and Tactical Systems Termination Letter to Kaman Dayron, May 8, 2006; and the Partial Stop Work Order, June 28, 2006;
 - memorandums including Product Manager Crew Served Weapons memorandum, “Milestone B In-Process Review for the XM307G Advanced Crew Served Weapon System for use on the Stryker Family of Vehicles as a ground mounted system,” June 23, 2005, for Program Executive Officer Soldier; Program Executive Officer Soldier memorandum, “Acquisition Decision Memorandum Approval for Entry in System Development and Demonstration (SDD) via Milestone B for the Ground Mounted Advanced Crew Served Weapon, XM307G,” June 24, 2005, for Product Manager Crew Served Weapons; Headquarters U.S. Army Infantry Center memorandum, “Remote Weapon System (RWS) Capabilities Improvements with XM307,” April 25, 2005, through the Director, Capabilities Developments, U.S. Army Training and Doctrine Command for the Army Deputy Chief of Staff (G-8); and Assistant Secretary of the Army (Acquisition, Logistics, and Technology) memorandum, “Transition of the Objective Individual Combat Weapon Increment II and high-explosive Airburst technology back to the Technology Base,” March 22, 2006, for Program Executive Office Soldier;
 - management principles and mandatory policies for acquisition programs in DoD Directive 5000.1, DoD Instruction 5000.2, Chairman of the Joint Chiefs of Staff Instruction 3170.01E, the Defense Acquisition Guidebook, and management control provisions and key internal controls in Army Regulation 70-1; and
 - contracting principles and mandatory policies for acquisition programs in the Federal Acquisition Regulation and Defense Federal Acquisition Regulation Supplement.

(U) We also contacted the staffs of the Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology); the Army Deputy Chief of Staff (G-3/5/7); the Army Training and Doctrine Command; the Army Infantry Center; the Program Executive Office Soldier; the Project Manager Soldier Weapons; the Product Manager Crew Served Weapons; the Product Manager Individual Weapons; the Picatinny Center for Contracting and Commerce to determine:

- the viability of a common fuze technology for the high-explosive, airbursting shells used in the XM25/XM29 and XM307 weapons; and
- whether the Army followed appropriate procedures for initiating the XM307 and XM307G Programs.

(U) In addition, we contacted contractor representatives from Alliant Techsystems to determine the contractor’s perspective on the viability of a common fuze technology for the high-explosive, airbursting shells used in the XM25/XM29 and XM307 weapons.

(U) We performed this audit from July 2006 through May 2007 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

(U) **Use of Computer-Processed Data.** We did not use computer-processed data to perform this audit.

(U) **Use of Technical Assistance.** The Technical Assessment Directorate, Office of the Deputy Inspector General (IG) for Policy and Oversight assisted the audit team in determining whether the operational requirements document for the Future Combat Systems was sufficient to serve as the requirements document for the XM307.

(U) **Government Accountability Office High-Risk Area.** The Government Accountability Office has identified several high-risk areas in DoD. This report provides coverage of the DoD Weapon Systems Acquisition high-risk area.

Prior Coverage (U)

(U) During the last 5 years, the DoD IG has issued three reports addressing the OICW Program. Unrestricted DoD IG Reports can be accessed at <http://www.dodig.mil/audit/reports>.

(U) DoD IG Report No. D-2006-123, "Program Management of the Objective Individual Combat Weapon Increment I," September 29, 2006

(U) DoD IG Report No. D-2006-087, "Acquisition of the Objective Individual Combat Weapon Increments II and III," May 15, 2006

(U) DoD IG Report No. D-2006-004, "Acquisition of the Objective Individual Combat Weapon," October 7, 2005

Appendix B. Glossary (U)

(U) Army Acquisition Executive. The Army Acquisition Executive is the Secretary of the Army. However, the Secretary of the Army delegated that authority to the Assistant Secretary of the Army (Acquisition, Logistics, and Technology), who is responsible for all acquisition functions within the Army.

(U) Acquisition Plan. An acquisition plan is a formal written document reflecting the specific actions necessary to execute the approach established in the approved acquisition strategy and guiding contractual implementation.

(U) Acquisition Strategy. An acquisition strategy is a business and technical management approach designed to achieve program objectives within the resource constraints imposed. It is the framework for planning, directing, contracting for, and managing a program. It provides a master schedule for research, development, test, production, fielding, modification, post-production management, and other activities essential for program success. The acquisition strategy is the basis for formulating functional plans and strategies.

(U) Ammunition. Ammunition (also called munition) is a complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological, or chemical material for use in military operations, including demolitions.

(U) Capability Development Document. A capability development document contains the information necessary to develop a proposed program, normally using an evolutionary acquisition strategy. The capability development document outlines an affordable increment of militarily useful, logistically supportable, and technically mature capability. The capability development document should be approved before the system development and demonstration decision review.

(U) Commonality. Commonality is a quality that applies to materiel or systems possessing like or interchangeable characteristics enabling each to be utilized or operated by personnel trained on the others without additional specialized training and/or having interchangeable repair parts and/or components.

(U) Evolutionary Acquisition. An evolutionary acquisition delivers capability in increments, recognizing up front the need for future capability improvements. There are two approaches to achieving an evolution acquisition: spiral development and incremental development.

- **Spiral Development.** A desired capability is identified, but the end-state requirements are not known at program initiation. Requirements are refined through demonstration, risk management, and continuous user feedback. Each increment provides the best possible capability, but the requirements for future increments depend on user feedback and technology maturation.

-
- **Incremental Development.** A desired capability is identified and an end-state requirement is known. The requirement is met over time by developing several increments, each dependent on available mature technology.

(U) Fuze. A fuze is the part of a device, in an explosive device or military munition, that initiates function. The device is designed to detonate, or to set forces into action to ignite or detonate the charge under specified conditions. Also known as fuse, the z spelling distinguishes between burning fuses and more complicated munition fuzes.

(U) Interoperability. Interoperability is the ability of systems, units, or forces to provide data, information, materiel, and services to (and accept the same from) other systems, units, or forces and to use the data, information, materiel, and services so exchanged to enable them to operate effectively together.

(U) Joint Capabilities Integration and Development System. The Joint Capabilities Integration and Development System supports the Chairman, Joint Chiefs of Staff and the Joint Requirements Oversight Council in identifying, assessing, and prioritizing joint military capability needs as required by law.

(U) Justification and Approval. A justification and approval is a document required by the Federal Acquisition Regulation to justify and obtain approval for contract solicitations that use other than full and open competition.

(U) Kinetic Energy. Kinetic energy is the energy of motion. An object which has motion, whether it be vertical or horizontal motion, has kinetic energy. Kinetic energy has many forms: vibrational (the energy due to vibrational motion), rotational (the energy due to rotational motion), and translational (the energy caused by moving from one location to another).

(U) Milestone Decision Authority. The milestone decision authority is the designated individual who has the overall responsibility for a program and is accountable for cost, schedule, and performance reporting to higher authority. The milestone decision authority has the authority to approve the program's entry into the next phase of the acquisition process.

(U) Projectile. A projectile is any object sent through space by an application. Most projectiles are designed as weapons.

(U) Shell. A shell is a projectile which contains an explosive. The most common shell type is high explosive, commonly referred to as HE. They have a strong steel case, a bursting charge, and a fuze.

(U) Standardization. Standardization is the process by which DoD achieves the closest practicable cooperation among forces; the most efficient use of research, development, and production resources; and agreement to adopt on the broadest possible basis the use of common or compatible operational, administrative, and logistics procedures and criteria; common or compatible technical procedures and

criteria; common or compatible or interchangeable supplies, components, weapons, or equipment; and common or compatible tactical doctrine with corresponding organizational compatibility.

(U) System Development and Demonstration. The system development and demonstration phase is the third phase of the DoD systems acquisition process, which begins after the milestone decision to enter this phase. This phase consists of system integration and system demonstration and contains a design readiness review at the conclusion of the system integration effort. DoD Instruction 5000.2, “Operation of the Defense Acquisition System,” May 12, 2003, states that entry into the system development and demonstration phase of the acquisition process occurs at Milestone B, which is also the point of program initiation for an acquisition program.

(U) Technology Development. The technology development phase is the second phase of the DoD systems acquisition process. The purpose of this phase is to reduce technology risk and to determine the appropriate set of technologies to be integrated into the full system. This phase is usually for advanced development work and does not mean that a new acquisition program has been initiated.

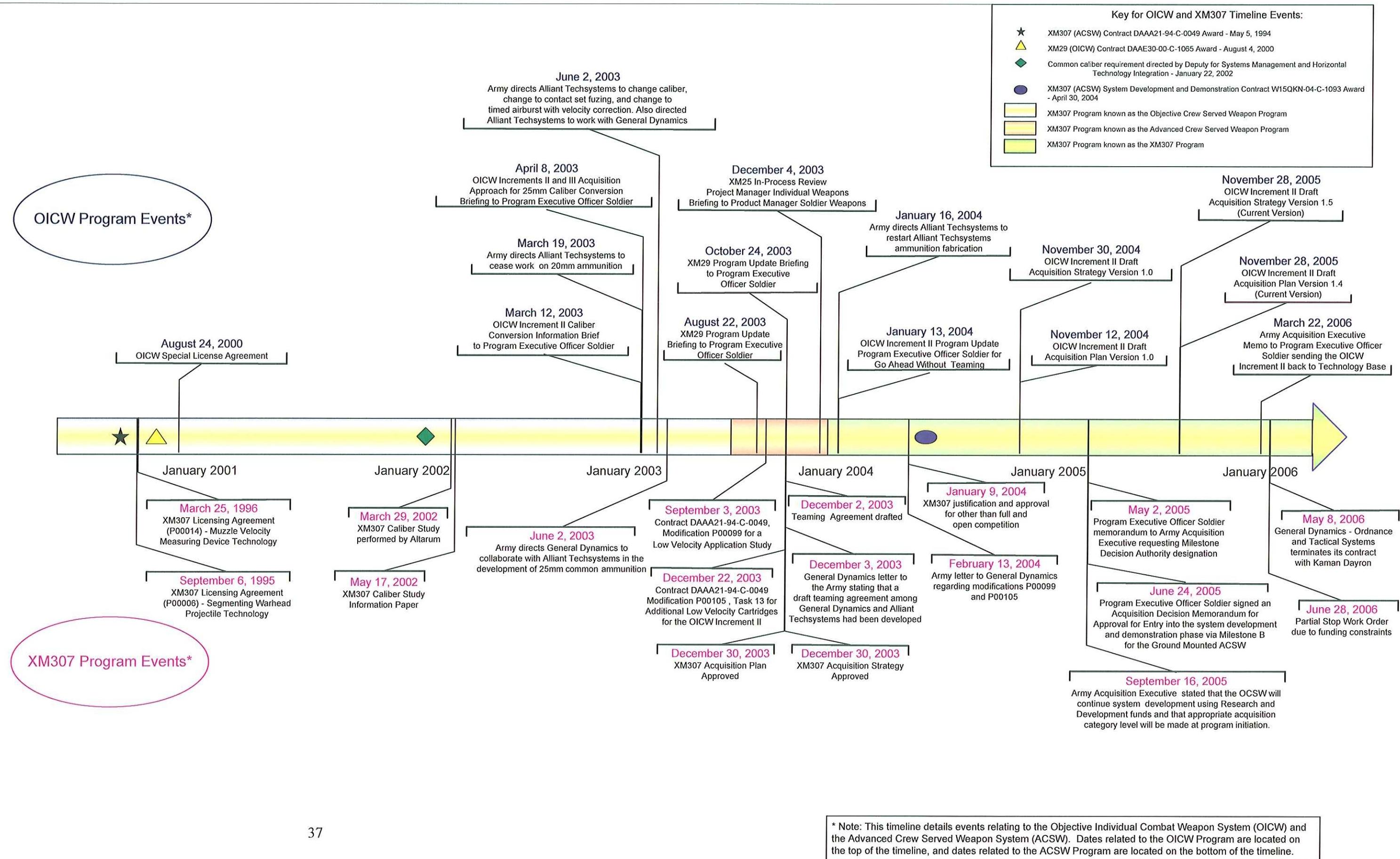
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Appendix C. Timeline of Applicable Events for the Objective Individual Combat Weapon and the XM307 Programs (U)

(U) The following chart illustrates a timeline that documents the OICW and XM307* events, which occurred from September 1995 through June 2006. The timeline includes OICW and XM307 contractor correspondence with the Army and OICW and XM307 acquisition strategy and acquisition planning documents.

(U) The chart is divided into two sections: the OICW Program events and XM307 Program events. The OICW Program events and the XM307 Program events are shown on the top and bottom sections of the timeline, respectively.

(U) The key for the OICW and XM307 timeline events is located in the upper right corner of the timeline.



Appendix D. Army Acquisition Executive Transition Memorandum (U)



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

MAR 22 2006

SAAL-SMS

MEMORANDUM FOR PROGRAM EXECUTIVE OFFICER, SOLDIER, ATTN: SFAE-SDR, 5901 PUTNAM ROAD, BUILDING 328, FORT BELVOIR, VA 22060

SUBJECT: Transition of the Objective Individual Combat Weapon Increment II (OICW II) and High Explosive Airburst (HEAB) technology back to the Technology Base

The OICW II program will be transitioned back into the technology base to continue the necessary work on the HEAB ammunition and system under the management of Project Manager Soldier Weapons. You are authorized to modify necessary contracts to facilitate an orderly transition and to reprogram available Fiscal Year 2005 and 2006 funds to support the necessary technology development work within the technology base. Specifically, technology base efforts should address ammunition refinement, the interface between the ammunition and the Target Acquisition/Fire Control System, and reducing the system's overall weight.

The exit criteria to proceed beyond the Technology Development Phase into the System Development and Demonstration Phase are as follows: a Joint Requirements Oversight Council approved capabilities document for the HEAB capability, a completed Army Test and Evaluation Command assessment of HEAB weapon system technologies, an approved acquisition strategy and acquisition program baseline, and a successful technology demonstration.

Claude M. Bolton, Jr.
Claude M. Bolton, Jr.
Army Acquisition Executive

CF:
SAAL-ZAC
SAAL-ZL
SAAL-ZP
SAAL-ZR
SAAL-ZS
SAAL-ZT

Appendix E. Program Executive Officer Soldier Acquisition Decision Memorandum (U)



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICE SOLDIER
5901 PUTNAM ROAD, BLDG 328
FORT BELVOIR VA 22060-5422

SFAE-SDR

JUN 24 2005

MEMORANDUM THRU Project Manager Soldier Weapons (SFAE-SDR-SW/Colonel Michael J. Smith), Building 151, Picatinny Arsenal, NJ 07806-5000

FOR Product Manager Crew Served Weapons (Lieutenant Colonel Kevin P. Stoddard/SFAE-SDR-CSW) Building 151, Picatinny Arsenal, NJ 07806

SUBJECT: Acquisition Decision Memorandum Approval for Entry in System Development and Demonstration (SDD) via Milestone B for the Ground Mounted Advanced Crew Served Weapon, XM307G

1. Based on the review of the Milestone B package dated 24 June 2005, approval is hereby provided to proceed in the SDD phase of the XM307G. The Product Manager shall provide a status update identifying the availability of funds and the program requirements within six months. This program will only address the requirement for a dismounted variant of the mounted XM307 crew served weapon.
2. Based on the status of the XM307G program, the following exit criteria are provided and must be fulfilled prior to Milestone C:
 - a. Demonstrate Engineering Development Models of airburst cartridge and a low recoil weapon in the intended Stryker environments.
 - b. Meet or exceed Key Performance Parameters described in the Operational Requirements Document for the Stryker Family of Vehicles and the Objective Crew Served Weapon (OCSW) Capability Development Document and demonstrate reliability, safety, and logistical supportability.
 - c. Develop Capability Production Document identifying performance capabilities of a production system.
 - d. Ensure the weapon system is producible and has no significant manufacturing risks.
 - e. Demonstrate system integration, interoperability, safety, and utility.
 - f. Potential environmental, safety, and health consequences will be analyzed and appropriate mitigation measures will be developed.
 - g. Program adequate resources to support production, deployment, and support.

SFAE-SDR

SUBJECT: Acquisition Decision Memorandum Approval for Entry in System Development and
Demonstration (SDD) via Milestone B for the Ground Mounted Advanced Crew Served
Weapon, XM307G

JUN 24 2005

3. Point of contact for this action is Alan Li, ACSW Division Chief, SFAE-SDR-CSW, DSN
880-4042, commercial 973-724-4042.



JAMES R. MORAN
Brigadier General, USA
Program Executive Officer Soldier

Appendix F. Management Comments on the Overall Report and Findings and Audit Response (U)

(U) Our detailed response to the comments from the Deputy for Acquisition and Systems Management, Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology); the Deputy Program Manager, Operations, Future Combat Systems (Brigade Combat Team [BCT]); and the Project Manager Soldier Weapons on the overall report and Findings A and B in a draft of this report follow. The Deputy for Acquisition and Systems Management, responding for the Assistant Secretary and the Program Executive Officer Soldier, included comments from the Deputy Program Manager and the Project Manager in his response to the draft report. The complete text of those comments is in the Management Comments section of this report.

Management Comments on the Overall Report and Audit Response (U)

(U) Comments on Previous Audits. The Project Manager Soldier Weapons stated that we referred to earlier audits in the context of an approved solution when in fact the Army stated on several occasions that some of the conclusions and recommendations of the previous reports were incorrect or the Army nonconcurred with the recommendations. He also stated that using those references without highlighting the disagreement provides an incorrect interpretation of the facts.

(U) Audit Response. We disagree that we referred to earlier audits in the context of an approved solution without highlighting the disagreements. Appendix A, “Scope and Methodology,” of the draft report and this report lists those earlier audits under “Prior Coverage” and states that “Unrestricted DoD Inspector General Reports can be accessed at <http://www.dodig.mil/audit/reports>.” At that Web site, the reader can see those audit reports, including the Army’s responses. Discussing those earlier audits in detail in this report is not germane to the audit objective and scope of this audit report.

(U) Comments on the XM25/XM29 Designation. The Project Manager Soldier Weapons stated that the XM25/XM29 designation for this report should not be combined. He explained that the XM29 is a 20-millimeter, caliber airburst weapon with a combinatorial, 5.56-millimeter, kinetic energy weapon, and the XM25 is a 25-millimeter caliber, stand-alone, airburst weapon.

(U) Audit Response. In the report, we combine the XM25 and the XM29 into the XM25/XM29 designation because those weapons use the same 25-millimeter caliber round. We used that designation only after the OICW Program transitioned to the incremental acquisition approach. That approach occurred in January 2003 and included the kinetic energy system (XM8 [Increment I]) and the stand-alone, high-explosive, airbursting system (XM25 [Increment II]). After

those systems were developed, the Army planned to combine them to form the originally conceived OICW (XM29 [Increment III]). When the Army combines OICW Increment I and II capabilities to form Increment III or XM29, the caliber of the XM29 will be 25-millimeters and not 20-millimeters, according to the November 28, 2005, draft XM25 acquisition strategy. Further, on June 2, 2003, the Procurement Contracting Officer, Picatinny Center for Contracting and Commerce, U.S. Army TACOM Life Cycle Management Command, on behalf of the Project Manager Soldier Weapons, directed the XM29 prime contractor to begin work on developing a 25-millimeter weapon system and ammunition.

(U) Comments on the Common Ammunition Study. The Project Manager stated that it is important to understand the timing of the common ammunition study (“Objective Crew Served Weapon Caliber Study”). He explained that at the time of the study, the XM25 did not exist, and that the XM29 could not tolerate the additional weight attributed to converting to the 25-millimeter ammunition. The Project Manager stated that the Army did not update the applicable acquisition plan and acquisition strategy because the XM29 Program had not changed.

(U) The Project Manager Soldier Weapons stated that when the XM25 converted to the 25-millimeter caliber, the Army intended to have a common projectile, which the study recommended. He also stated that the Army prepared a draft XM25 acquisition strategy and acquisition plan to address a common projectile; however, staffing could not keep up with the changes in the XM25 Program. By the time the XM25 stabilized, contractor teaming for a common fuze had been unsuccessful. Consequently, the Army terminated further attempts at teaming. Further, the Project Manager stated that the XM307 acquisition strategy and acquisition plan addressed a common ammunition because staffing and approval occurred during the contractor teaming attempt. He concluded that the timing of the acquisition strategies and acquisition plans was as follows: the XM29 was before teaming, the XM307 was during teaming, and the XM25 was completed after teaming.

(U) Audit Response. We agree that at the time of the common ammunition study in February 2002, the XM25 did not exist, and the XM29 could not tolerate additional weight. In September 2001, the OICW (XM29) could not meet the threshold for the weight key performance parameter using a smaller caliber shell, a 20-millimeter caliber, high-explosive, airbursting shell. It was at that time, the Army pursued an evolutionary development acquisition strategy for the OICW from which the OICW Program transitioned to the incremental acquisition approach with Increments I (XM8), II (XM25), and III (XM29) in January 2003. However, after the Procurement Contracting Officer, Picatinny Center for Contracting and Commerce directed the contractor on June 2, 2003, to increase the caliber of the XM25 high-explosive, airbursting shell from 20-millimeters to 25-millimeters, the OICW Program Office did not update the XM29 acquisition strategy and acquisition plan. Because the XM25 is an integral component of the XM29, the XM29 acquisition strategy and acquisition plan should have addressed the change in caliber of the XM25 high-explosive, airbursting shell.

(U) Irrespective of the timing of the acquisition strategies and plans, the OICW and XM307 Program Managers need to update their respective acquisition strategies and plans to reflect a consistent acquisition approach. The XM307 acquisition strategy and plan and the XM25 acquisition plan have a goal to develop a common high-explosive, airbursting fuze technology, as suggested by the “Objective Crew Served Weapon Caliber Study,” March 29, 2002. However, the XM25 acquisition strategy and the XM29 acquisition strategy and plan did not include that requirement.

(U) **Comments on the Pictures.** The Project Manager Soldier Weapons stated that the picture of the XM25 weapon system is a mockup 25-millimeter weapon system and that the picture of the XM29 is an engineering prototype that includes 20-millimeter high-explosive, airburst and 5.56-millimeter kinetic energy capabilities.

(U) **Audit Response.** The pictures are to provide the reader with a general image of the XM25 and XM29 weapon systems. The narrative provides the reader with a more specific description of the capabilities of those systems.

Management Comments on Finding A and Audit Response

(U) **Comments on Including Common Fuze Technology in Acquisition Strategies and Plans.** The Project Manager Soldier Weapons disagreed with the draft report statement that “This condition occurred because the then-Program Executive Officer Soldier (PEO Soldier) did not require the OICW and XM307 Program Offices to include in their acquisition strategies and the acquisition plans a common high-explosive, airbursting fuze technology.” He stated that the separate fuze technologies began during the technology base phase, which the Joint Service Small Arms Program Office managed before the OICW and XM307 Programs transitioned to the Project Manager Soldier Weapons. Further, the Project Manager stated that he and the PEO Soldier attempted to team the two vendors regarding the fuze, systems interface, and selected internal components. He also stated that the “Objective Crew Served Weapon Caliber Study” did not suggest that common fuze be included in the acquisition strategies and acquisition plans.

(U) **Audit Response.** We agree that the separated fuze technologies began during the technology base phase for the OICW and XM307 and that PEO Solider and the Project Manager Solider Weapons attempted to team the two vendors. We also agree that the “Objective Crew Served Weapon Caliber Study” did not suggest that common fuze be included in the acquisition strategies and acquisition plans. However, the study did recommend that:

- a common projectile would be feasible;
- the two weapon systems should utilize the same fuze setting, range determination, and safe and arming mechanism; and
- the two weapon systems should have similar 25-millimeter ammunition.

(U) On June 2, 2003, after the OICW (XM29) and XM307 prime contractors began working on a common, high-explosive, airbursting fuze technology, the XM307 Program Office updated the XM307 acquisition strategy and plan, accordingly. However, the OICW Program Office did not update the XM29 acquisition strategy and acquisition plan to address a common, high-explosive, airbursting fuze technology. To reflect a consistent acquisition approach, the OICW and XM307 Program Offices should have included in their acquisition strategies and the acquisition plans a common, high-explosive, airbursting fuze technology, in accordance Federal Acquisition Regulation, Subpart 7.104, "General Procedures," and Army Regulation 70-1, "Army Acquisition Policy," December 31, 2003.

(U) Comments on Contractor Proprietary Technology. The Project Manager Soldier Weapons disagreed with the draft report statement that "Although the XM307 has a fuze technology that is adaptable to the XM25/XM29, the program offices were unsuccessful in getting the XM25/XM29 and XM307 prime contractors to implement a common fuze technology." He stated that the respective program offices could not legally direct the two contractors to implement a common fuze technology because teaming would force each contractor to surrender their proprietary technology to a competitor.

(U) Audit Response. We are neither suggesting that the contractors surrender proprietary technology to one another nor is it our intention to suggest acquisition strategies to the program offices. To achieve a common fuze technology requires only a single contractor with the desired fuze technology; therefore, only one fuze contractor is required and no transfer of technology is necessary.

(U) Comment on Common Caliber and Fuze Technology. The Project Manager Soldier Weapons disagreed with the draft report statement that "In February 2002, an Army contractor conducted a study to determine whether the OICW (XM29) and the Objective Crew Served Weapon (OCSW), which later became the ACSW and then the XM307, should have the same caliber and possibly be capable of firing the same ammunition." He stated that the study determined that a common round for both weapons was not feasible, but that a common projectile (internal workings of the fuze and warhead) was feasible. The Project Manager stated that at the time of the study, the XM29 used a 20-millimeter round, did not meet the weight key performance parameter, and could not handle the added weight of a larger 25-millimeter round. He concluded that before the direction to change the high-explosive airburst component of the XM29 to a 25-millimeter round, the failure to meet the weight key performance parameter remained the primary reason for the XM29 remaining a 20-millimeter weapon with a different fuze requirement from that of the XM307.

(U) Audit Response. We agree that the February 2002 study determined that a common round for both weapons was not feasible, but that a common projectile (internal workings of the fuze and warhead) was feasible. We also agree that at the time of the study, the XM29 used a 20-millimeter round, did not meet the weight key performance parameter, and could not handle the added weight of a larger 25-millimeter round. However, we disagree with the assertion that the failure to meet the weight key performance parameter was the primary reason for the XM29 remaining a 20-millimeter weapon with a different fuze requirement

from that of the XM307 before the direction to change the high-explosive airburst component of the XM29 to a 25-millimeter round. The Army did not begin considering a 25-millimeter round for the XM29 with a similar fuze requirement as the XM307 until after the February 2002 study.

(U) Comment on the Army Acquisition Executive Memorandum for the Record. The Project Manager Soldier Weapons disagreed with the draft report statement that “While the XM25 Program is in the technology development phase, the XM25 Program Office has the opportunity to evaluate and implement a common fuze technology to be compatible with the XM307 Program.” He stated that the Army Acquisition Executive directed the Future Combat Systems Program not to spend FY 2008 funds on the XM307 Program. Based on this direction, the Project Manager Soldier Weapons stated that it would not be in the best interest for the XM25 Program to spend sparse resources on the evaluation of a common fuze technology that would be compatible with the XM307 Program.

(U) Audit Response. We disagree that it would not be in the best interest for the XM25 Program to spend sparse resources on the evaluation of a common fuze technology that would be compatible with the XM307 Program. The sparse resources are all the more reason to evaluate and implement a common fuze technology to be compatible with the XM307 Program. The “Objective Crew Served Weapon Caliber Study,” March 29, 2002, determined the cost of the fuze for the XM29 to be \$20.50 and the cost of the fuze for the OCSW, which later became the XM307, to be \$15.02. By using the XM307 fuze for the XM25/XM29 round, the OICW Program Office would be able to reduce the cost per round by as much as \$5.48. The July 1, 1999, OICW Ammunition Requirements document states that the overall requirement for XM29 high-explosive, airbursting ammunition for FY 2004 through FY 2014 was 19,610,740 rounds. By applying the \$5.48 cost avoidance, the OICW Program Office has the opportunity to put about \$107.5 million (\$5.48 multiplied by 19,610,740 rounds) to better use by requiring the use of the XM307 fuze for the XM25/XM29 round.

Management Comments on Finding B and Audit Response

(U) The Deputy Program Manager, Operations, Future Combat Systems (BCT); and the Project Manager Soldier Weapons provided comments on Finding B in a draft of this report. Those comments follow with our response.

(U) Comments on a Lack of a Milestone Decision and Approved Requirements. The Deputy Program Manager stated that Finding B refers to a lack of a decision to enter the system development and demonstration phase of the acquisition process and a lack of approved requirements documents. He also stated that we may not be aware that the Future Combat Systems (FCS) is an Acquisition Category 1D program that entered the system development and demonstration phase of the acquisition process in the third quarter of FY 2003. Further, the Deputy stated that the FCS Program Manager believed the operational requirements supporting the acquisition of the XM307 materiel solution were represented in the Joint Requirements Oversight Council-approved FCS

operational requirements document. He also stated that the FCS Program has an approved acquisition strategy, acquisition plan, and acquisition decision memorandum from the Defense Acquisition Executive.

(U) Audit Response. We are aware that the FCS is an Acquisition Category 1D program that entered the system development and demonstration phase of the acquisition process. In the finding, we are not stating that the FCS Program did not have an approved acquisition strategy, acquisition plan, and acquisition decision memorandum. We are stating that the XM307 Program did not have approved warfighter requirements and approval for entry into the system development and demonstration phase of the acquisition process. When the XM307 Program began the system development and demonstration phase in December 2003, the XM307 was not part of the FCS Program and did not have a Joint Requirements Oversight Council-approved operational requirements document, a capability development document, or an acquisition decision memorandum approving entry into the system development and demonstration phase. Specifically, after the award of the contract for system development, the Assistant Secretary of the Army (Financial Management and Comptroller) withdrew approximately \$117 million in research, development, test, and evaluation funds for the XM307 Program. The Assistant Secretary withdrew those funds because the XM307 Program did not have a valid requirements document, according to a representative from the Office of the Assistant Secretary of the Army (Acquisition, Logistics, and Technology). To compensate for the funding shortfall, the FCS Program Office decided to fund the XM307 Program based on the Common Close Support Weapon requirement in the April 14, 2003, version of the FCS operational requirements document. However, a representative from the Army Deputy Chief of Staff (G-3/5/7) stated that the operational requirements document for the FCS did not contain sufficient detail to develop the XM307 weapon system. Specifically, the FCS operational requirements document did not include Close Combat Support Weapon requirements that were specific enough to generate system requirements and key performance parameters for the XM307.

(U) Comments on Developing the XM307 for Use in the FCS Program. The Deputy Program Manager stated the Army was developing the XM307 for use in the FCS Program as a component of the Close Combat Armament Subsystem. Further, he stated that the Army planned to incorporate the Close Combat Armament Subsystem into several of the manned ground combat vehicles that were systems within the FCS system of systems. The Deputy also stated that, until recently, the Army planned to incorporate the XM307 into two of the unmanned ground combat vehicles that are systems within the FCS Program. He concluded that it was unreasonable to expect that a separate capability development document be established for such low-level components of the FCS. The Deputy noted that the FCS operational requirements document included all user-required capabilities for the FCS system of systems and its component platforms and their subsystems. He also cited sections of the FCS operational requirements document as the requirement for the XM307.

(U) Audit Response. As a complementary program to the FCS system of systems, we continue to believe that the XM307 should have its own requirements document. A representative from the Office of the Director, Program Analysis

and Evaluation stated that the FCS has 18 different subsystems with additional complementary programs. The representative stated that program offices, which are separate from the FCS Program Office, manage the complementary programs. The FCS Program Office later integrates those complementary programs into the FCS. He also explained that the complementary programs are stand-alone acquisition programs that must have their own acquisition program documentation, such as a capability development document, acquisition strategy, and a test and evaluation master plan. Because the XM307, which is to be integrated into the FCS, is not one of the 18 FCS subsystems, it must be considered a complementary program. As such, the XM307 Program must have a more detailed requirements document separate from that of the FCS operational requirements document.

(U) Comments on Modifying the Finding. The Deputy Program Manager suggested several editorial changes be made to the finding because he contended that:

- the XM307 being developed for the FCS was covered by the FCS milestone decision to enter the system development and demonstration phase of the acquisition process and by associated program documentation, and
- the requirements imposed on the XM307 from the FCS systems engineering requirements were sufficient to design this particular subsystem component.

(U) The Deputy concluded that it was unreasonable to expect the user to include design details for a system or subsystem within the operational requirements document. The intent of the requirements document is to define the user capability that is needed and to allow the development community to determine the most efficient and effective technical solution to fill that need.

(U) Audit Response. As a complementary program to the FCS system of systems, we continue to believe that the XM307 should have its own requirements document, as discussed above. Further, if the XM307 Program was addressed in the FCS milestone decision, the Army Acquisition Executive should have signed the XM307 acquisition strategy report before the FCS milestone decision and not over 7 months later on December 30, 2003, when the program began system development and demonstration. In addition, if the FCS Program included the XM307 Program, the XM307 would not have required a separate acquisition strategy. Therefore, we did not make the suggested editorial changes with the exception of one that addressed the FCS operational requirements document. We added requirements from section 1579 of the FCS operational requirements document to our discussion of the XM307 requirements in Finding B.

(U) Comments on Proper Authorization for the XM307 and XM307G Programs to Enter the System Development and Demonstration Phase. The Project Manager Soldier Weapons disagreed with the draft report statement that “In addition, the XM307 and XM307G Programs, without proper authorization, entered the system development and demonstration phase of the acquisition

process.” He stated that the XM307 Program passed the system development and demonstration milestone decision as part of the FCS Program system development and demonstration milestone decision. Further, the Project Manager stated that the XM307 Acquisition Strategy Report approved and signed by the Army Acquisition Executive on December 30, 2003, reads as follows:

TYPE OF PROGRAM: This acquisition is for development of the XM307 Advanced Crew Served Weapon System in support of the Army’s Future Combat Systems (FCS) Program. As such, the XM307 does not have an individual Acquisition Category (ACAT) designation. It assumes the FCS ACAT designation, which is ACAT 1D. Based on decisions made during the FCS Milestone B [milestone decision to enter the system development and demonstration phase] and since the XM307 Program is a subordinate element to the FCS program, the XM307 Program Milestone Decision Authority (MDA) is the Army Acquisition Executive (AAE).

(U) Audit Response. We disagree that the XM307 Program passed the system development and demonstration milestone decision as part of the FCS Program system development and demonstration milestone decision. As a complementary program to the FCS system of systems, the XM307 should have its own requirements document and acquisition decision memorandum.

(U) Comments on Developing the XM307 in the System Development and Demonstration Phase. The Project Manager Soldier Weapons disagreed with the draft report statement that “The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process before the Joint Requirements Oversight Council approved the warfighter requirements of the XM307.” He stated that the XM307 was part of the FCS Program and met the threshold Common Close Support Weapon requirements of the FCS Joint Requirements Oversight Council-approved operational requirements document.

(U) Audit Response. Even though the XM307 Program Office contends that the FCS operational requirements document included requirements for the XM307 and the FCS acquisition decision memorandum on May 17, 2003, included the XM307, the U.S. Army Training and Doctrine Command prepared Version 2.0 of the XM307 draft capability development document, dated August 16, 2004, to support the milestone decision for the XM307 Program to enter the system development and demonstration phase of the acquisition process.

(U) Comments on Sufficient Detail to Specifically Identify the XM307 Requirements. The Project Manager Soldier Weapons disagreed with the draft report statement that “The Assistant Secretary of the Army (Acquisition, Logistics, and Technology) should not allow the XM307 Program Office to commit or obligate any further resources on this program until it has a stand-alone requirement approved by the Joint Requirements Oversight Council or the operational requirements document for the FCS is updated to contain sufficient detail to specifically identify the XM307 requirements.” He stated that the FCS operational requirements document provides sufficient detail to perform trades and analyses of alternative studies to identify and consider all reasonable materiel solutions that meet the constraints specified in the operational requirements document. Further, the Project Manager stated that the XM307 was the weapon selected in five trade studies, which he identified. He stated that each trade study

included detailed analyses consisting of: system lethality against personnel and materiel targets; platform integration burden (weight, recoil load, space claim, ammunition load, and remote operation); cost; and technical maturity.

(U) Audit Response. We are aware that the XM307 was selected in five different trade studies to serve as the materiel solution for the Close Combat Support Weapon. However, trade studies do not replace approved warfighter requirements. Based on the Deputy Program Manager, Operations, Future Combat Systems (BCT) comments, we revised the statement to recommend that the XM307 have a stand-alone requirements document that the Joint Requirements Oversight Council has approved instead of recommending that the XM307 have a stand-alone requirements document or that the FCS operational requirements document be updated to contain sufficient detail to address XM307 capabilities.

(U) Comment on Reference to Future Combat System Operational Requirements Document. The Project Manager Soldier Weapons stated that the draft report incorrectly references the September 2004 FCS operational requirements document instead of the previous April 2003 version, which was used in the initial trade study.

(U) Audit Response. We revised the report to reference the April 2003 version of the FCS operational requirements document.

(U) Comments on Developing the XM307 Program. The Project Manager Soldier Weapons disagreed with the draft report statement that “The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process without a milestone decision review, an acquisition decision memorandum, and a requirements document approved by the Joint Requirements Oversight Council.” He stated that the May 14, 2003, FCS milestone decision to enter the system development and demonstration phase was at the macro level and that the acquisition decision memorandum stated:

While we have a strong sense of what FCS is today, the program must remain flexible and open to accommodate trades in the system architecture and in the individual systems’ designs, with the ultimate objective of providing an effective, affordable, producible, and supportable increment of military capability.

(U) The Project Manager stated that the Army Acquisition Executive has documented his support and selection of the XM307 by signing the XM307 Acquisition Strategy Report and Acquisition Plan in December 2003. Further, he said that the Army Acquisition Executive signed a Justification and Approval for other than full and open competition in January 2004. The Project Manager stated that in a September 16, 2005, memorandum to Program Executive Officer Soldier, the Army Acquisition Executive stated that, “The OCSW serves as the proposed solution for the Close Combat Support System for the FCS.” The Project Manager concluded that as referenced above, the XM307 was part of the

FCS Program and met the threshold Common Close Support Weapon requirements of the FCS Joint Requirement Oversight Council approved operational requirements document.

(U) Audit Response. Before the statement that the Project Manager quotes from the May 17, 2003, acquisition decision memorandum for the FCS Program, the Under Secretary of Defense for Acquisition, Technology, and Logistics was discussing evolutionary acquisition and a system engineering approach. The Under Secretary stated that:

The Department's thrust in evolutionary acquisition aims to shorten cycle time in order to deliver advanced military capability as soon as possible. Although the FCS Increment 1 program is schedule-challenged, it is not schedule-bound -- the FCS program shall be event-based and shall apply a disciplined system engineering approach throughout development.

(U) The only reference to a complementary system, such as the XM307, was where the Under Secretary stated that the Office of the Secretary of Defense will apply a special management oversight and review process to ensure synchronization of complementary systems and external interfaces.

(U) Regarding the September 16, 2005, memorandum, "Milestone Decision Authority (MDA) Designation for Program Executive Officer (PEO) Soldier Programs," the Army Acquisition Executive did not state that the XM307 was one of the system of systems in the FCS Program. Included in the statement that the Project Manager quoted, the Army Acquisition Executive stated that:

The PEO Soldier Program list shows the Objective Crew Served Weapon (OCSW), as an ACAT [Acquisition Category] II program. The OCSW serves as the proposed Close Combat Support System for the Future Combat System. At this time, the Army requires only a limited number of OCSW systems. We will continue the system development of the OCSW project using research and development funds. The capability documentation for the stand-alone OCSW is under development and has not yet undergone Army staffing. When a final decision is made concerning OCSW, the system will be given the appropriate acquisition category level upon program initiation.

(U) As a complementary program to the FCS system of systems, we continue to believe that the XM307 should have its own requirements document and acquisition decision memorandum.

Appendix G. Report Distribution (U)

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition, Technology, and Logistics
 Director, Acquisition Resources and Analysis
Under Secretary of Defense (Comptroller)/Chief Financial Officer
 Deputy Chief Financial Officer
 Deputy Comptroller (Program/Budget)
Director, Operational Test and Evaluation
Director, Program Analysis and Evaluation
Director, Defense Procurement and Acquisition Policy

Joint Staff

Director, Joint Staff
 Director for Force Structure, Resources, and Assessment (J-8)

Department of the Army

Commander, Army Training and Doctrine Command
 Commander, Army Infantry Center
Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
 Program Executive Officer Soldier
 Project Manager Soldier Weapons
 Product Manager Crew Served Weapons
 Product Manager Individual Weapons
 Program Manager for Future Combat Systems
Assistant Secretary of the Army (Financial Management and Comptroller)
Commander, Army TACOM Life Cycle Management Command
 Executive for Contracting, Picatinny Center for Contracting and Commerce
Commander, Army Test and Evaluation Command
Deputy Chief of Staff (G-3/5/7)
Deputy Chief of Staff (G-8)
Deputy Under Secretary of the Army (Operations Research)
Auditor General, Department of the Army
Deputy General Counsel (Acquisition)

Department of the Navy

Assistant Secretary of the Navy (Research, Development, and Acquisition)
Naval Inspector General
Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Acquisition)
Auditor General, Department of the Air Force

Combatant Command

Commander, U.S. Special Operations Command
Acquisition Executive, U.S. Special Operations Command

Non-Defense Federal Organization

Office of Management and Budget

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations

Senate Subcommittee on Defense, Committee on Appropriations

Senate Committee on Armed Services

Senate Committee on Homeland Security and Governmental Affairs

House Committee on Appropriations

House Subcommittee on Defense, Committee on Appropriations

House Committee on Armed Services

House Committee on Oversight and Government Reform

House Subcommittee on Government Management, Organization, and Procurement,

Committee on Oversight and Government Reform

House Subcommittee on National Security and Foreign Affairs,

Committee on Oversight and Government Reform

Assistant Secretary of the Army (Acquisition, Logistics, and Technology) Comments (U)



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310

SAAL-SMS

MEMORANDUM FOR PRINCIPAL DIRECTOR FOR ACQUISITION, ACQUISITION AND CONTRACT MANAGEMENT, OFFICE OF THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE, 400 ARMY NAVY DRIVE, ARLINGTON, VA 22202

SUBJECT: Response to the Draft Report on Airbursting Fuze Technology Used for the Objective Individual Combat Weapon and the Advanced Crew Served Weapon

1. Thank you for the opportunity to address your draft report regarding the U.S. Army's airbursting fuze technology associated with the Objective Individual Combat Weapon (OICW) and Advanced Crew Served Weapon (ACSW) programs.
2. The report makes several recommendations. Finding A recommended that the Project Manager Soldier Weapons (PMSW) conduct a feasibility study of a common fuze for both the OICW and the ACSW and if the results indicate, pursue the common fuze. The PMSW has addressed this recommendation in TAB A. It appears your auditors have discounted the reality of working with industry and industry's concern and legal right to protect their proprietary technology. The PM has made a significant effort to merge the two efforts but was unsuccessful. That does not reduce the viability of a merged fuze, but in the context of negotiations with the two separate contractors, it may be irrelevant. As the Army moves forward in the High Explosive Airburst Arena, there may develop new opportunities to again revisit this issue and the Program Executive Office will certainly continue to push for the best business practices in these efforts.
3. Reference your recommendation in Finding B to discontinue further development, including future contracts or modifications, research, development, test, and evaluation funding of the XM307, there continues to be a disagreement over the acceptability of the Future Combat System (FCS) requirement documents and their relationship to the complementary and supporting systems. The PMSW attached comments address those disparities and further clarify that the XM307 program was in concert with the requirements and desires of the Army and OSD leadership through multiple reviews and decision forums for the FCS. I highlight the response from the FCS PM in his response to the discussion draft dated January 29, 2007, attached in TAB 1.

Paragraph 2. "...the document refers to a lack of a Milestone B and a lack of approved requirement documents. Perhaps your office may not be aware that the FCS is an ACAT 1D System of Systems program which passed Milestone B and entered System Design and Development phase in 3QFY03. The PM FCS believes the operational requirements supporting the acquisition

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of the XM307 materiel solution are fully embodied in the Joint Requirements Oversight Council approved FCS Objective Requirements Document. The FCS program has an approved Acquisition Strategy, Acquisition Plan and Acquisition Decision Memorandum (ADM) from the Defense Acquisition Executive."

4. Finding C recommends that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) rescind the June 24, 2005, ADM for the XM307G program and further recommends that all work cease until the requirements issue is resolved. We concur that the June 24, 2005, ADM should be rescinded but support the PMSW position that the originating office, the Program Executive Office, should rescind the document. The Army continues to maintain that the requirements approved through the FCS program reviews remain intact and therefore non-concurs with the second portion of the recommendation to cease all work on the High Explosive Airburst Technology and the requirements generated by the need for a close combat support weapon for the FCS.
5. Tab A also provides a more detailed response to the draft report to provide facts and details that your auditors have overlooked or not included in this draft as a result of the PMSW submission in response to the discussion draft of this report. I request that your auditors resolve the discrepancies and, at least include the disparities in our positions in your final report.

For Jeffrey A. Sorenson
Jeffrey A. Sorenson
Major General, GS
Deputy for Acquisition and
Systems Management

Project Manager Soldier Weapons Comments (U)

Consolidated comments and input on the
DoDIG Draft Proposed Report D2006-D000AE-0154.001

General Comment on the document: In several places in the document the auditor referred to earlier audits in the context of an approved solution when in fact the Army stated on several occasions that some of the conclusions and recommendations of the previous reports were incorrect or the Army non-concurred with the recommendations. Using those references without highlighting the disagreement provides a bias incorrect interpretation of the facts.

XM25/XM29 designation for this document should not be combined. XM29 caliber is a 20mm airburst with a combinatorial 5.56mm KE weapon and XM25 caliber is 25mm standalone airburst. This is important to understand the timing of the common ammo study. At the time of the study the XM25 did not exist and the XM29 could not tolerate the added system weight burden that would be attributed to conversion to 25mm. The Acquisition Plan (AP)/Acquisition Strategy (AS) were not updated because there was no change to the XM29. When the XM25 with its 25mm caliber began, the intent was to have a common projectile recommended by the study. A draft AP/AS was prepared to reflect this but staffing could not keep up with the changes to the program. By the time the XM25 stabilized, contractor teaming for a common fuze had been unsuccessful and further attempts were terminated. The XM307 AP/AS included common ammo because staffing and approval occurred during the contractor teaming attempt. Basically, the timing of the AP/AS were as follows: XM29 was before teaming, XM307 during teaming, XM25 was completed after teaming.

Page 1. Pictures – XM25 is a mock-up 25mm weapon system and the XM29 is an engineering prototype that includes 20mm High Explosive Air Burst and 5.56mm KE.

Page 5, paragraph A. Viability of a Common High Explosive Airbursting Fuze Technology

Comment:

Second sentence: "This condition occurred..." is incorrect. The separate fuze technologies began during the technology base phase that was managed by the Joint Service Small Arms Program (JSSAP) Office prior to program's transition to the PM. It was, in fact, the PM Soldier Weapons and the Program Executive Officer, Soldier that directed and pursued the attempt to team the two vendors on the fuzing, systems interface and selected internal components. Also the referenced study did not suggest that the common fuze be included in the AP/AS.

Comment:

Third sentence: "Although the XM307 has a fuze..." The Program Office had no legal standing to direct the contractors implement a common fuze technology which in effect forces them to surrender their proprietary technology to a competitor.

Revised

Page 6, 5th Paragraph Common Caliber and Fuze Technology

First paragraph: "in February 2002, an Army contractor...." These statements are misleading. The study determined that: A common round for both weapons was not feasible but common projectile (internal workings of the fuze and warhead) were feasible. However the XM29 was already not meeting the weight KPP and could not tolerate the added weight burden involved in incorporating a larger 25mm round. The common fuze was feasible only if the calibers were the same. At this point in the MX29 program, the caliber was still 20mm. Prior to the direction to change the individual High Explosive Air Burst system to a 25mm round, the weight burden of the KPP remained the driving force for the XM29, keeping the 20mm weapon with the resulting separate fuzing requirement from that of the XM307.

Page 9, 4th paragraph, 3rd sentence: "While the XM25..." As a budgetary decision, the AAE directed the FCS program to not spend FY08 funds on their Objective requirement for the XM307 program. At this time it is not good business practice for the XM25 program to expend the sparse resources on evaluation of common fuze technology to be compatible with the XM307 program.

Page 11, Recommendations

Non-Concur with implementing the recommendation as it is presented in the Draft report. Both the High Explosive Airburst program in the technology base and the XM307 program have been significantly cut back and funding is not immediately available to conduct the study recommended. Should the necessary requirements be approved to proceed with both programs and the funding is reestablished, then the Program Manager Soldier Weapons will reconsider the recommendation. While it may be intuitively obvious that a similar fuze will create inherent savings, the Army must weigh the effects of directing the two separate vendors to merge their fuze technologies and, in fact, cannot force them to divulge their proprietary information as referred to in an earlier comment. It does not make good business sense at this time to require evaluation of common fuze technologies between the programs from the perspective of either the XM25 nor XM307 programs.

DoDIG: Executive Summary Paragraph #4 states... *In addition, the XM307 and XM307G Programs, without proper authorization, entered the system development and demonstration phase of the acquisition process ...*

PMSW:

Comment: The XM307 program passed Milestone B as part of the FCS program Milestone B decision. The XM307 Acquisition Strategy Report approved and signed by the AAE on 30 Dec 2003 reads as follows:

TYPE OF PROGRAM: This acquisition is for development of the XM307 Advanced Crew Served Weapon System in support of the Army's Future Combat Systems (FCS) Program. As such, the XM307 does not have an individual Acquisition Category (ACAT) designation. It assumes the FCS ACAT designation, which is ACAT

ID. Based on decisions made during the FCS Milestone B and since the XM307 Program is a subordinate element to the FCS program, the XM307 Program Milestone Decision Authority (MDA) is the Army Acquisition Executive (AAE).

DoDIG: Executive Summary Paragraph #4, sub-bullet 2 states... *The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process before the Joint Requirements Oversight Council approved the warfighter requirements of the XM307.*

PMSW:

Non-concur. The XM307 was part of FCS program, and met the threshold CCSW requirements of the FCS JROC approved ORD.

DoDIG: Executive Summary Paragraph #4, sub-bullet 2 states ... *the operational requirements document for the FCS is updated to contain sufficient detail to specifically identify the XM307 requirements XM307 Program Office.*

PMSW:

Comment: The FCS ORD provides sufficient detail to perform trades and analyses of alternative studies to identify and consider all reasonable material solutions that meet the constraints specified in the ORD. The XM307 was the weapon selected in each of the following five trade studies: AMSAA Crew Served Weapons Study, Small/Medium Caliber Trade Study, SDD-56, SDD-139 and SDD-449. Each trade study included detailed analyses consisting of: system lethality against personnel and materiel targets, platform integration burden (weight, recoil load, space claim, ammunition load, and remote operation), cost, technical maturity.

DODIG: Section B, page 12

PMSW

Comments: Section B, page 12, Program Management of the XM307 (U) sub-bullet 2 incorrectly references a September 2004 ORD for FCS instead of the previous April 2003 version used in the initial trade study.

Revised
Page 13

DoDIG: Section B, page 13, Managing the Future Combat System's XM307 (U) paragraph 1 states ...*The XM307 Program Office began developing the XM307 in the system development and demonstration phase of the acquisition process without a milestone decision review, an acquisition decision memorandum, and a requirements document approved by the Joint Requirements Oversight Council.*

Page 14

PMSW: Non-concur. PM Soldier Weapons disagrees with this statement.

The FCS Milestone B conducted on 14 May 2003 was at the macro level but it stated "While we have a strong sense of what FCS is today, the program must remain flexible and open to accommodate trades in the system architecture and in the individual systems' designs, with the ultimate objective of providing an effective, affordable,

producible, and supportable increment of military capability". Note that in the initial trade study prior to FCS Milestone B and in the four succeeding trade studies, the XM307 was consistently selected as the best system's solution for the CCSW. These studies were conducted by the Army Materiel Systems Analysis Agency (AMSAA) and they are available.

The Army Acquisition Executive has documented his support/selection of the XM307 by his signing of the Acquisition Strategy Report and Acquisition Plan in December of 2003 stating "Based on decisions made during the FCS Milestone B and since the XM307 Program is a subordinate element to the FCS program, the XM307 Program Milestone Decision Authority (MDA) is the Army Acquisition Executive (AAE)".

The AAE also signed the Justification and Approval for other than full and open competition in January of 2004. In addition, in a Memorandum from the AAE to PEO Soldier, dated 16 September 2005, the AAE states "The OCSW serves as the proposed Close Combat Support System for the Future Combat System". This PM Soldier Weapons position is fully supported by the 29 January 2007 letter from the Deputy Program Manager, Operations, Future Combat Systems (BCT) to the Office of the Department of Defense Inspector General, same subject (TAB 1).

As referenced above, the XM307 was part of the FCS program and met the threshold CCSW requirements of the FCS JROC approved ORD.

Page 14

DoDIG: Section B, page 13, Managing the Future Combat System's XM307 (U)
paragraph 2, sub-bullets 1 and 2.

PMSW:

The XM037 program proceeded into SDD as part of the FCS program. The AAE acknowledged that the XM307 is part of the FCS program as clearly identified in the XM307 AP and ASR approval. PM FCS supports the position that the XM307 is part of the FCS program in the 29 January 2007 letter (TAB 1).

Page 14

DoDIG: Section B, page 13, Managing the Future Combat System's XM307 (U)
paragraph 3

PMSW:

We continue to disagree and non-concur with this paragraph on the basic requirement for the Close Combat Support Weapon on the FCS. The XM307 was part of FCS program, and met the threshold CCSW requirements of the FCS JROC approved ORD. As previously stated, the FCS ORD provides sufficient detail to perform trades and analyses of alternative studies to identify and consider all reasonable material solutions that meet the constraints specified in the ORD. The XM307 best met all the requirements and was the weapon selected in each of the following five trade studies: AMSAA Crew Served Weapons Study, Small/Medium Caliber Trade Study, SDD-56, SDD-139 and SDD-449. Each trade study included detailed analyses consisting of:

system lethality against personnel and materiel targets, platform integration burden (weight, recoil load, space claim, ammunition load, and remote operation), cost, technical maturity.

DoDIG: Section B, page 14, Effects of Managing the XM307 (U) paragraph 1 states -
By not completing the requirements process and not obtaining Milestone decision authority approval ...the XM307 Program Office prematurely spent about \$98.1 million...

Page 15

PMSW:

PM Soldier Weapons disagrees with the underlying assumption that requirements process was not followed. As stated above, the XM307 was part of FCS program, and best met the threshold CCSW requirements of the FCS JROC approved ORD.

DoDIG: Section B, page 14, Effects of Managing the XM307 (U) paragraph 2 states
...without assurance that the XM307 will satisfy warfighter requirements.

Page 15

PMSW:

Developmental items have inherent risk of not meeting all of the requirements. However in the five separate trade studies the XM307 was selected as the weapon most likely to meet the requirements, to include derived and traditional crew served weapon requirements.

DoDIG: Section B, page 16, Recommendation (U) *We recommend that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) discontinue further development, including future contracts or modifications, and research, development, test, and evaluation funding of the XM307, until the program has:*

- a stand-alone requirements document that the Joint Requirements Oversight Council has approved or the operational requirements document for the Future Combat Systems is updated to contain sufficient detail to address XM307 capabilities, in accordance with Chairman of the Joint Chiefs of Staff Instruction 3170.01E, "Joint Capabilities Integration and Development System," May 11, 2005; and*
- a milestone decision review and an acquisition decision memorandum that approves the XM307 Program for entry into the system development and demonstration phase of the acquisition process, in accordance with DoD Instruction 5000.2, "Operation of the Defense Acquisition System," May 12, 2003.*

Revised
Page 18

PMSW:

Non-concur. There is a valid FCS requirement and the XM307 does not need a stand alone requirements document for reasons stated below:

The program is still an "objective requirement" as specified in the AAE memo, Future Combat Systems (FCS) Program Objective Memorandum (POM) Adjustments, dated 11 Jan 2007.

This position is fully supported by the 29 January 2007 letter from the Deputy Program Manager, Operations, Future Combat Systems (BCT) to the Office of the Department of Defense Inspector General, same subject (TAB 2).

Non-concur with DoDIG recommendation to discontinue further development.

However, PM Soldier Weapons is executing an orderly cessation of all FCS funded development activities of the XM307 by either Termination for Convenience or Curtailment. PM Soldier Weapons will use best judgment to efficiently curtail/close out activities to ensure best value to the government while properly archiving data for the FCS objective requirement. It is PM Soldier Weapons' position that care should be taken to preserve the work accomplished to date even if a contract modification is required.

PM Soldier Weapons intends to pursue guidance on utilizing the FY07 Congressional plus-up (non FCS funds) to mature various components of the XM307.

DoDIG: Section C, Program Management of the XM307G (U)

Section C, Page 20, Recommendation (U) states *We recommend that the Assistant Secretary of the Army (Acquisition, Logistics, and Technology):*

1. Rescind the June 24, 2005, acquisition decision memorandum for the XM307G Program, thereby removing the program from the system development and demonstration phase of the acquisition process to comply with requirements in Army Regulation 70-1, "Army Acquisition Policy," December 31, 2003.

PMSW:

PM Soldier Weapons agrees the XM307G ADM should be rescinded; however, it should be signed by the same office that signed the original ADM and will be submitted to the PEO Soldier for signature.

PMSW:

Appendix C, page 30 is missing.

Program Manager Future Combat Systems Comments (U)


REPLY TO
ATTENTION OF
SFAE-FCS-DO

DEPARTMENT OF THE ARMY
PROGRAM MANAGER
FUTURE COMBAT SYSTEMS (BCT)
325 J.S. MCDONNELL BOULEVARD
MAILCODE: S306-6155
HAZELWOOD, MISSOURI 63042

29 January 2007

MEMORANDUM FOR PROGRAM DIRECTOR, ACQUISITION AND CONTRACT MANAGEMENT, OFFICE OF THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJECT: Discussion Draft of a Proposed Report Project No. D2006-D000AE-0154.001
(Airbursting Fuze Technology Used for the Objective Individual Combat Weapon and the Advanced Crew Served Weapon)

1. The Office of the Program Manager for the Future Combat Systems (FCS) would like to express our thanks for the opportunity to review and comment on the subject draft document. After our internal review, we would like to offer you our comments and proposed corrections on some of the discussion contained within Appendix B.

2. In several places throughout the appendix, the document refers to a lack of a Milestone B and a lack of approved requirements document. Perhaps your office may not be aware that the FCS is an ACAT 1D System of Systems program which passed Milestone B and entered System Design and Development (SDD) phase in 3QFY03. The PM FCS believes the operational requirements supporting the acquisition of the XM307 materiel solution are fully embodied in the JROC approved FCS ORD. The FCS program has an approved Acquisition Strategy, Acquisition Plan and Acquisition Decision Memorandum from the Defense Acquisition Executive.

3. The XM307 was being developed for use in the FCS program as a component of the Close Combat Armament Subsystem that was to be incorporated on several of the manned ground combat vehicles that are systems within the FCS system of systems. Until recently, the XM307 was also slated to be incorporated on two of the unmanned ground combat vehicles that are systems within the system of systems. As such, it would be unreasonable to expect that a separate Capability Design Document be established for such low level components of the FCS. The FCS Operational Requirements Document (ORD) has all User required capabilities for the System of System, its component platforms and their subsystems. The driving requirement for the XM307 is ORD #1579.

a. FCS Manned Systems (with the exception of MV-E & MV-T, ICV & R&SV) must conduct day/night and adverse weather engagements to 1500 m (Threshold), 2000 m (Objective) while stationary or on the move in a 360-degree horizontal at elevations from -20 degrees to +60 degrees or more with a common close support weapon. Targets engaged include stationary or moving ground personnel in the open or in defilade and lightly armored vehicles. Effects are scalable from lethal to non-lethal. This weapon system will be capable of firing multiple types of ammunition: anti-personnel, armor piercing, area effects, incendiary, non-lethal, and tracer from a common dual-fed magazine (selectable by the crew) with a selectable default setting. The system must

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have automatic weapon loading with a manual back-up. The system must provide self or remote correction of malfunctions. The weapon system must be capable of being fired with the crew in a protected position (Threshold) and remote firing by the crew positioned up to 1,000 m (Objective) off the platform. (See Annex I)

b. This unclassified part of ORD#1579, combined with its classified portion (which calls out specific probability of kill values against specific targets under specific operational conditions), the common requirements contained with the ORD (e.g. operating temperature range, survivability requirements, transportation requirements) and the design requirements flowed from the FCS Lead Systems Integrator and Vehicle Integrators (e.g. reliability, weight, size, allowable power draw, interface designs) are more than sufficient to fully specify the design constraints that are needed by the XM307 developers.

4. Since it is our contention that the XM307 being developed for the FCS was covered by the FCS Milestone B and associated programmatic documentation, and that the requirements imposed on the XM307 from the FCS program's System Engineering requirements flow-down are sufficient to design this particular subsystem component, the Office of the Program Manager for FCS requests the following modifications to the subject document:

- a. Page 12 third paragraph: remove the word "prematurely"
- b. Page 12 third paragraph: remove the words "without assurance that the XM307 will satisfy warfighter requirements"
- c. Page 13 third paragraph: change "without a milestone review, an acquisition decision memorandum, and a requirements document approved by the Joint Requirements Oversight Council: to "based on the FCS Milestone B, Acquisition Strategy and Acquisition Decision Memorandum"
- d. Page fourth paragraph: remove the sentence "The XM307 Program Office and the Picatinny Center for Contracting and Commerce took those actions without the Army Acquisition Executive: * holding a milestone decision review to authorize the start of the XM307 Program and * documenting approval in an acquisition decision memorandum, as required."
- e. Page 13 last paragraph: delete the first sentence "When the XM307 Program began the system development and demonstration phase, the XM307 did not have a Joint Requirements Oversight Council approved operational requirements document or a capability development document."
- f. Page 13 last paragraph: change "valid" to "separate"
- g. Page 14: Inclusion of the paragraph from section 1 of the FCS ORD is not truly appropriate. Section 1 is editorial. The actual requirements are in section 2 ("Capabilities Required), and the driving requirement for the Common Close Support Weapon is referenced above. Recommend that be substituted.
- h. Page 14 second major paragraph: delete "As written, the operational requirements document for the Future Combat Systems did not provide detailed requirements to develop the XM307. A representative from the Army Deputy Chief of Staff (G-3/5/7) agreed that the operational requirements document for the Future Combat Systems did not contain sufficient detail to develop the XM307 weapon system. Further, the Joint Requirements Oversight

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Council validation of the operational requirements document for the Future Combat Systems did not specifically address whether the Army would be required to prepare a separate and more detailed requirements document for the XM307." The previous paragraphs of this memorandum clearly state our position that the ADM authorizes the PM to execute the FCS program and all of its systems, subsystems and subcomponents. Standard system engineering practices, when combined with the FCS ORD, are sufficient for deriving all of the necessary design criteria for its Common Close Support Weapon.

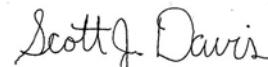
i. Page 14 second to last paragraph: delete in its entirety, since FCS Milestone B authorizes the PM to develop a Common Close Support Weapon, the expenditure of funds was not premature.

j. Page 14 last paragraph: delete "without assurance that the XM307 will satisfy warfighter requirements." One of the criteria for inclusion of a technical solution in the FCS SDD is attainment of Technology Readiness Level of 6. The XM307 TRL was between 7 and 8; more than justifying that the normal development would be able to satisfy FCS capability requirements.

k. Page 15 first sub-bullet: change "or the operational requirements document for the Future Combat Systems is updated to contain sufficient detail to address XM307 capabilities, in accordance with Chairman of the Join Chiefs of Staff Instruction 3170.01E, "Joint Capabilities Integration and Development Systems.; May 11, 2005; and" to "or the Army authorizes the funding of the XM307 to satisfy other valid requirements such as the FCS Common Close Support Weapon; and"

5. While these changes do not in any way change the conclusions of your report (and indeed they are only in one of the appendices), we feel that the assertion that a separate requirements is not needed for any system or subsystem wholly contained within the scope of a more expansive system or system of systems. It is also unreasonable to expect the User (and indeed undesirable) to included design details for a system or subsystem wholly within the operational requirements document. The intent of the requirements document is to define the User capability that is needed and to allow the development community to determine the most efficient and effective technical solution to fill that need.

6. The Office of the Program Manager for the Future Combat Systems remains ready to discuss these recommended changes with your office. The Point of Contact is Mr. Mark Oetken 973-724-7611.



SCOTT J. DAVIS
DPM, Operations
Future Combat Systems (BCT)

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The Department of Defense Office of the Deputy Inspector General for Auditing, Acquisition and Contract Management prepared this report. Personnel of the Department of Defense Office of Inspector General who contributed to the report are listed below.

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Inspector General Department *of* Defense

